THE HISTORY

OF TYPEWRITING INSTRUCTION

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THE HISTORY OF TYPEWRITING INSTRUCTION

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FOREWORD

This history of typewriting instruction is an attempt to encompass in a reasonably brief report the development of instruction in the use of the typewriter from its inception to modern times. An effort will be made to trace the development of such instruction from its earliest appearance in a somewhat embryonic stage as handled through necessity by the typewriter companies themselves or their salesmen, through the days of the flourishing business college and the introduction of the teaching of typewriting into the public schools up to our own present time. That many things outside the school affect teaching procedures will also be shown. Examples of outside factors affecting teaching procedures are:

(1) the demands of business

(2) the degree of mechanical perfection and inventive ingenuity shown by the manufacturer of the machine on which instruction is desired

(3) the demands of the individual's private life (which are becoming increasingly important in our own day)

(4) developments in psychology

(5) developments in research and its techniques

(6) attitude of educators in general, particularly administrators

(1) the demands of business

Perhaps there has nowhere been as great an increase in the demands of the businessman with respect to the office worker as there has been in the field of typewriting. Employers, of course, must long have been aware that some typists turned out a much greater volume of acceptable work than others, but for many decades no recognition was made of this. Gradually as research in the field of efficiency became more effective and as time and motion studies came to be more generally understood and made use of, employers have not only come to pay, in many instances, on a production basis, but also to demand greater output from the same amount of equipment. The "Depression" had a profound effect in increasing the demands of employers, although World War II had the effect of temporarily abating them. The pressure now brought to bear upon business itself to "produce" or cease to exist insures that there can be no relaxation of standards at this point.

Furthermore, almost everyone who hopes to work in an office must know how to type skillfully. The day of the employment of the unprepared worker who suddenly finds

himself in need of a job is over and the general office worker is now obsolete.

(2) the degree of mechanical perfection and inventive ingenuity shown by the manufacturer of the machine on which instruction is desired

In the early decades of their manufacture, typewriters just were not capable of enduring the speeds of today. Furthermore, many of the nice adjustments, such as the ratchet release, had not been thought of. The tabular mechanism has been vastly improved within the memory of many who are not only still teaching but nowhere near retirement.

(3) the demands of the individual's private life

The demands of private life, insofar as typewriting is concerned, are becoming such that a large per cent of the population must either become proficient themselves in the use of the typewriter or reconcile themselves to the payment of what eventually amounts to a considerable sum for having work typed. Changes in the life of Mr. Average which have brought this about are accounted for partly by

(a) Increase in higher education

(b) Increase in number and length of reports demanded by the Government

(c) Desire or necessity for making a good impression in regard to writing of various sorts

which must be submitted to others

(d) Unwillingness of those in a position to dictate to read handwriting, as professors, heads of departments, supervisors, etc.

(4) Developments in Psychology

Research in psychology has been quite enlightening with reference to our methods of teaching typewriting. There has been a great change in our thinking with regard to the development of skill since the days when William Book was the unchallenged authority on "Learning to Typewrite". The logical approach has not only been abandoned in the interests of efficiency but we regard errors in a different light and understand their causes somewhat better although imperfectly even yet. Gestalt psychology for a time held sway, only to be, in its turn, superseded by a better way. We have not reached the end of our studies here.

(5) Developments in Research

Not only in education but also in business, better techniques in research and greater understanding and interest in the results of such research are coming to affect teaching procedures. The first of these, the Gilbreth studies in bricklaying, resulted in an increased efficiency of workmen of about 400 per cent in an occupation in which little or no improvement had been shown for more than 3000

years.[1] The Taylor study of the methods of handling pig iron likewise not only increased efficiency but also decreased fatigue.[2] Time and motion studies, which have for some time been accepted in factory work, have now moved into the field of office work[3] and, since research techniques are improving constantly, their findings will not only cause modification of methods of handling typing and other work in offices but will gradually effect a change in teaching methods as well.

(6) Attitude of educators in general, particularly administrators

In the days when the high school was believed to exist primarily for the purpose of preparing youth for college, business education was more often than not treated like an unwanted step-child; but with the opening of the era of "education for all the children of all the people," all types of vocational education began to come into their own. There can be no slipping back into the old way, because neither Business nor the interests of the individual will permit it.

Definitions

In the writing of this thesis, the term commercial education, now largely superseded by the term business

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[1]Book, William F. Learning to Typewrite. Gregg Publishing Co., 1925, p. 155

[2]loc. cit.

[3]Schmidt, Martin F. Time and Motion Study in the Office. UBEA Forum, February, 1948, p. 35

education is considered to be synonymous with it.

The term kinesthetic is used in this thesis to refer to that muscular sense which aids in learning or in retaining what has been learned. Learning of this type is understood to take place with reference to the making of new motions in the development of complex skills, such as typewriting.

It is intended to present the data in chronological order, but due to the overlapping of teaching practices whereby old methods coexist, even sometimes in the same locality, with those which have been shown to be an improvement over the old, it may not always be possible to keep each period free of entanglements with those which precede and follow it. Then, too, it may occasionally seem feasible, for the sake of avoiding confusion, to complete the treatment of a topic, such as fingering, at the point where it is introduced rather than to interpolate the comments which apply to the various developments in typewriting instruction at the point where the changes actually occurred in time.

It will be apparent, too, from this account that the lag between the incipience of good teaching practice and its nationwide acceptance by the average classroom teacher is as great here as has been claimed for other fields of learning,

i. e. about fifty years.

It is the sincere wish that this study will aid others who are seeking a compilation of data in somewhat condensed form on this same subject of research.

Chapter I -- From the Invention of the First Practical Typewriter to about 1900

Salesmen were the First Instructors by Necessity

When the typewriter was just a new-fangled gadget, there was, of course, no such thing as typewriting instruction. But, as has always been true, in order to make an invention a paying proposition, there must be sales, and in order to make sales, it has often been necessary to show the public the possibilities of the new machine, whether its use has been in the field of farming, of manufacturing, or of business. This was just as true of the typewriter as of many other inventions.

> No doubt much of the early difficulty in making sales of the typewriter may be traced to the fact that there were no trained operators for the machines. It became necessary for the selling agents to train typists until such time as the school should recognize the need and take over the task.[1]

> In the first decade of typewriter history, the greatest problem confronting the manufacturer was the fact that there were no operators....neither men nor girls who knew anything about typing. For this reason, Remington organized its own schools, and in many cases furnished the operator when the machine was sold.[2]

> It was not a case of finding the operator, for in those days there were none to find. It was another

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[1] Knepper, Edwin G. History of Business Education in the United States, Bowling Green State University, Bowling Green, Ohio p. 80

[2] from a booklet, The History of the Typewriter Remington Rand Inc. No date given (judging by the pictures of the typewriters shown as recent models it appears to have been in the 1940's) p. 4

selling job, usually that of persuading someone to become an operator and then, in most cases, of training that operator. Truly the early typewriter salesman earned all that he made.[1]

Mark Twain's Experience with an Early Typist

The type of work done by one of the earliest "students," apparently a salesman-trained product has been set down for us by Mark Twain. In 1873, so the account runs, Mark Twain and a friend happened to see a machine in a store window and went in to look at it.

> "The salesman explained the machine to us, "he writes, "showed us samples of its work, and said that it could do 57 words a minute--a statement which we frankly confessed that we did not believe. So he put his type-girl to work, and we timed her by the watch. She actually did the 57 words in 60 seconds. We were partly convinced, but said it probably couldn't happen again. But it did. We timed the girl over and over again--with the same result always: she won out. She did her work on narrow slips of paper, and we pocketed them, as fast as she turned them out, to show as curiosities."
>
> He goes on to tell us that when he and his friend returned to their hotel, they took out those slips and were very much disappointed to find that they all contained the same words. "The girl," writes Mark, "had economized time and labor by using a formula which she knew by heart. * * * * "
>
> He continues his account by telling us how he played with the machine at home (the one he bought) repeating over and over again the sentence: "The boy stood on the burning deck," until he could turn out the boy's adventure at the rate of 12 words a minute. Mark Twain's visitors carried away reams of the boy and his burning deck.[2]

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[1]Herkimer County Historical Society The Story of the Typewriter, Herkimer, New York, 1923 p. 78

[2]from the Rowe Budget, published by the H. M. Rowe Company, March, 1933, first page. They do not divulge from whence they got this information.

The account in the Rowe Budget tells us that Mark had a good time playing with his typewriter, but that when he wanted to work at his trade of writing he went back to the pen. Circumstances must have changed, however, as he progressed in his self-taught lessons because we have information from another source that he was the first author to submit a typewritten manuscript to a publisher.[1]

Business Schools Begin to Offer Instruction in Typewriting

Instruction was not long left to such uncertain methods as self-teaching and the ingenuity of typewriter salesmen, however.

> It would be difficult to say whether the business schools contributed more to the success of the typewriter than the typewriter to their success. The advantage must have been definitely mutual.[2]

The business schools, then in their heyday, were alert enough to sense the advertising possibilities of having a few machines available for the use of such students as might be interested, although at first there was nothing that could justify being called instruction and even what little there was was haphazard and individual; and it was left to those pupils who were sufficiently interested to "practice" if and as they saw fit.

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[1] Herkimer County Historical Society op. cit. p. 72

[2] Knepper op. cit. p.80

> Individual practice prevailed from the first. It could not qualify as "instruction," because it was only teacher-supervision when a teacher was about at all.[1]

Which School Was First?

There is considerable doubt as to what school can claim the honor of first having offered instruction in typewriting. Weller refers to a

> machine manufactured under the name of Densmore and Porter that was being used in a commercial school in Chicago, of which Mr. Porter was the principal.[2]

He does not indicate whether the machine was used for instruction purposes or not. This reference is not well authenticated nor is the date certain--it is thought to have been 1870.

We have, however, a positive record that in 1878, the year in which the first really popular machine appeared--the Remington No. 2--typewriting was being taught in New York City.

> The first (business) school which taught typewriter, of which there is positive record, was that of D. L. Scott-Browne at 737 Broadway, New York (1878).[3]

Women Not Wanted in Business

In a leaflet put out for advertising purposes by Remington Rand Inc. a picture is captioned:

> This is Nassau street at New York's city hall in the 80's--and not a woman to be seen in this important business district. (In the caption of a second picture on the next page it reads:) Half a century ago women

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[1]Smith, Harold H. The Teaching of Typewriting The American Shorthand Teacher, March, 1929 p. 242

[2]Weller, Charles E. Story of the Typewriter Pamphlet published by Remington Rand Inc. p. 41

[3]Herkimer County Historical Society op. cit. p. 81

> did not even visit the mercantile sections of our cities.[1]

These facts throw some light on the heat of public sentiment against the first courses for women in typewriting which would permit them to enter business offices as employees which are set forth in the following account:

> Pioneering in the instruction of typing.... and the first to offer courses for women....was the Young Women's Christian Association in New York City. The Business School which graduated a class of eight women typists in 1881, exists in New York today as the Ballard School of the Central Branch Y. W. C. A.
>
> When the Y. W. C. A. announced that typing courses were to be opened to women, public opinion was immediately aroused. The plan was referred to as "an obvious error in judgment," and the managers of the school were called "well-meaning but misguided ladies." It was feared by many that the female mind and constitution would break down completely under a six months' course in typing. Eight "strong women" were found, however. They were graduated and placed in offices. Then the demand for more "female typewriters" was immediate.[2]

Many other business schools followed suit and soon one who lived or sojourned in any reasonably large city found it possible to obtain typewriting instruction without first getting in touch with the manufacturer.

> Within five years there was not a single large city which did not have at least one school teaching typewriting. How long it would have taken the public schools to meet this demand one can only guess. The business schools responded with remarkable promptness.

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[1] from an eight-page leaflet, Outline of Typewriter History, put out by Remington Rand Inc., probably issued during the 1930's. pp. 4 and 5

[2] from a booklet, The History of the Typewriter, Remington Rand Inc. (date probably sometime in 1940's) p. 4

> * * * Private business schools were not long in sensing the possibilities and opportunities of the typewriter. Very early they began to cooperate with the manufacturers by installing machines in the schools. This was done even before the teachers were themselves qualified operators.[1]

However, instruction was not long in arriving. No doubt it was largely a question of the teachers first acquiring some degree of skill themselves by methods of self-instruction and practice so that they might present to others the working of the machine by means of what might seem to them the most feasible method of operation.

> Growing as it did out of the demands of the century, out of the industrial revolution, and, more immediately, out of the invention of the typewriter, instruction in typewriting had no time for development of theory or philosophical consideration of comparative methods. The thing to do was to write, to use the machine, and for this one or two fingers on each hand were amply sufficient for everybody.[2]

Typewriters Are Improved

Of course, as commercial usage became more general, ideas with regard to the best method of typewriter operation changed, some of which were brought about by changes in the mechanical makeup of the machine itself.

> During the first years of its history, the typewriter was used only for straight line-by-line writing --that is, manuscripts, letters, and the like. Unexplored remained the fields of form, tabular, and statistical writing because of the lack of mechanical means for instantly setting the carriage at any desired point.[3]

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[1] Knepper op. cit. p. 80

[2] Blackstone, E. G. and Smith, S. L. Improvement of Instruction in Typewriting Prentice-Hall, Inc., 1946 p. 4

[3] Leffingwell, William H. (edited by) The Office Appliance Manual published for the National Association of Office Appliance Manufacturers p. 352

The Accident of the All-Finger Method's Being Discovered

Apparently no one questioned the notion that the use of one or two fingers on each hand was the best method of operation until quite by accident a young man was incited to try the use of all fingers by hearing that a young woman was doing so. As he himself said in later years: "Boy-like I made up my mind that whatever a girl could do I could do."[1] We are told that this is the way it happened:

> A young court reporter in Grand Rapids, Michigan, named Frank McGurrin, who typed quite skillfully by sight, the only method known at the time, bragged about his skill to a lawyer, who called in the office. That's nothing," replied the lawyer, "there's a girl over in the office of the District Attorney who can write on the typewriter while she is looking out the window."[2]

McGurrin was also told that this girl used all her fingers, whereas he, at that time, although he had established a reputation as a rapid typist, used only two or three.

> Not to be outdone by the young woman, the envious young court reporter immediately made an eager, even anxious study of the keyboard. Could it possibly be true that a person could type without looking at the typewriter keys? After studying the keyboard, young McGurrin made a chart showing the locations of all the letters, which, incidentally were the same as they are today on the standard keyboard. Then he proceeded to operate the machine from the chart with a handkerchief over the keys. After a few months he, too, so he thought, could type while looking out the window. About

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[1] Blackstone and Smith op. cit. p. 5

[2] Slaughter, Robert E. John Robert Gregg, Inventor, Educator, Benefactor of Mankind Business Education World, October, 1947 p. 77

> a year later he went over to the District Attorney's office to see the girl who, he had been informed could do likewise. To his astonishment he found that she could type with just two fingers.[1]

and, to use his own words:

> "I learned to my surprise that she did not operate the machine without looking at the keyboard and had never attempted to do so. * * At that time I could write upwards of 90 words per minute in new matter without looking at the keyboard."[2]
>
> But a great art had been brought into existence by a young man's trying to emulate something he thought had been done. * * Touch typing was born, and Frank McGurrin is credited with the discovery. The year was 1878.[3]

This was the year that the first shift-key model of the typewriter was introduced.

The Use of All Fingers Not Widely Accepted at First

But people are slow to accept new ways and there was still much difference of opinion regarding how many fingers to use in typing and which ones.

> The number advocated ranged from one on each hand to the inclusion of all fingers of both hands, even including the thumbs. Most writers seemed to believe, however, that the best arrangement was to use three fingers of each hand. The operators of non-shift machines practically always favored the use of at least three fingers because of the larger keyboard to be covered.[4]
>
> But until almost the end of the century, many arguments by teachers and relatively expert operators were heard against the use of the last two fingers on each hand.[5]

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[1] Slaughter, loc. cit.

[2] Blackstone and Smith op. cit. p. 5

[3] Slaughter op. cit. p. 77

[4] Knepper op. cit. p. 83

[5] Smith, Harold H. The Story of Teaching Methods in Typewriting Business Education World, January, 1947 p. 276

A Typewriter Sales Manager Becomes Interested in Touch Typewriting

The most alert of the typewriter salesmen were always on their toes to know the most efficacious ways of teaching the use of the typewriter since teaching methods sometimes influence the volume of sales.

> The coordinating, motivating, and publicity influences through these years were concentrated in a few representatives of typewriter manufacturers who saw in the improved skill of typists an opportunity to increase the prestige of their companies.[1]

> The first typewriter man to interest himself in the system (touch) was H. V. Rowell, for many years manager of the Remington office in Boston.[2]

It was because of a paper read by Mrs. Longley (see p. 145) before the First Annual Congress of Shorthand Writers, held at Cincinnati in 1882, that Rowell became interested in touch typing. From that time on he was an ardent and persistent advocate of this method of learning.

> The first business educator who took up this method at Rowell's suggestion was W. E. Hickox who introduced it in his private shorthand school at Portland, Maine. Hickox, who began to teach typing in 1882, was the second educator in America and the first in the East to adopt this method, but it was some years before he had any imitators.[3]

> ....On the whole, educators put Mr. Rowell down as a "crank" and chattered in unison, "It can't be done." It wasn't logical, they said, that the weaker third and fourth fingers could be used efficiently; and, anyway, pupils would not take the trouble to learn that way."

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[1]Smith op. cit. BEW January, 1947 p. 277

[2]Herkimer County Historical Society op. cit. p. 112

[3]Ibid

How like the modern reasoning.[1]

> Rowell, however, continued ceaseless in his efforts, and in 1889 he interested B. J. Griffin of the Springfield Business School, Springfield, Massachusetts. Griffin became a touch typewriting enthusiast. He introduced it in his school to the exclusion of all other methods, and the remarkable skill of some of his graduates soon produced a deep impression on other business educators.[2]

> Griffin featured the fact that he blind-folded every student at certain times and dictated direct to the typist, thus enforcing touch typing.[3]

This method of typing received its name from Bates Torrey of Portland, Maine, who used the term in A Manual of Practical Typewriting, of which he was the author, published in 1889.

> The word "touch" seems such a natural one as applied to this method that it would seem almost futile to search for its originator, but, as a matter of fact, Bates Torrey was the first one to use it in a printed manual.[4]

Contests Prove the Superiority of the Touch Method

Although Frank McGurrin and his brother Charles, also an expert typist, advocated the use of touch typing and did considerable demonstrating and lecturing on its behalf, it was several decades before it was generally adopted by either schools or typists, although there were some other pioneers like Mr. Hickox and Mr. Griffin who taught it in their schools and advertised it as the best way.

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[1]Smith op. cit. American Shorthand Teacher, March, 1929 p. 241

[2]Herkimer County Historical Society op. cit. p. 112

[3]Smith op. cit. Business Education World, Jan., 1947 p.277

[4]Herkimer County Historical Society op. cit. p. 113

> In view of the fact that many of the early typewriters were intended for the use of the blind had they been successful, and further, that the "piano" type of keyboard was used, even by Sholes, it would have seemed but natural that the operators would have been instructed not to watch the keyboard in writing. This was not the early practice, however, and when McGurrin demonstrated his ability to do this, it was looked upon as a sort of trick demonstration. Moreover, it was at first supposed that the ability was a gift and that most persons could never learn it. Even when the demonstrations were made by McGurrin there were plenty of doubters. One such was a man named Traub, who was considered a fast writer. A test of speed and skill was arranged for between him and McGurrin. Traub used a double keyboard and watched his machine, while McGurrin used a single shift keyboard and wrote by touch. There were two forty-five minute tests, one from dictation, the other from copy. The material in both cases was unfamiliar to the operators. McGurrin easily won both tests and so convinced Traub that the latter proceeded to learn touch writing.[1]

Another writer gives further details about the same contest:

> The most notable of the early typewriting contests was held in Cincinnati, July 25, 1888. Frank E. McGurrin demonstrating touch typing on the single-keyboard typewriter decisively defeated Louis Traub, a typing instructor and an agent for and an expert sight operator of the leading double-keyboard machine of that day: the Caligraph. Not only faster than Traub, both in the 45 minutes of typing from dictation and in the 45 minutes of typing from copy, McGurrin typed three words a minute faster from copy than from dictation, while Traub's speed fell off twelve words a minute when typing from copy.[2]

So we see that even then it was evident that the ability to keep the eyes steadily on the copy without looking away for any purpose was apparent in its effect on the speed of the typing. The fact that touch typing was so slow in being

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[1]Knepper op. cit. p. 84

[2]Smith op. cit. BEW, January, 1947, p. 277

adopted on a widespread basis was doubtless due to the fact that in those days neither the businessman nor the individual had the pressure put upon him to accomplish the greatest amount in the least time that is so ubiquitous a part of modern life.

Actual tests by the writers themselves appear to have furnished, quite early, rather conclusive evidence of the superiority of the touch method (in addition to those in which McGurrin took part). Ed. J. Manning related his experience thus:

> "My highest speed was reached when I learned to operate upon blank keys. I found that the characters on the keys were confusing when writing at a very rapid rate, so I effaced them. I found that I could write not only more speedily but more correctly without the characters. The operation became more purely mechanical, and my fingers found the right keys unconsciously. I found, also, that I could write without looking at the keyboard, which is of course a great advantage when copying is required."[1]

Mr. Manning may have been the first person ever to have used a blank keyboard, although we cannot be certain about this.

An Early Typewriting Instructor Tells His Story

Another early typewriting teacher was C. E. Birch, whose writings have frequently been published in professional magazines (particularly the Business Education World[2] and the

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[1] Knepper op. cit. p. 84

[2] Business Education World, 270 Madison Avenue, New York, published the ten months of the school year. (Connected with the Gregg Publishing Company)

Balance Sheet)[1] under the pen-name of "John Faithful". The story of his initial experience in teaching typewriting follows in his own words:

> When the opportunity came to teach business subjects to young men and women in a large vocational school, I was happy to undertake it. There was a challenge about this comparatively new field in education that gripped me and opened up a work which was most enjoyable.
>
> The Secretarial Department had five typewriters--four old "blind" Remingtons and one new Smith Premier. * * The text, a large book bound in green cloth, side opening like a geography, taught the use of two fingers on either hand. The author argued that the other fingers were too weak and uncontrolled.
>
> I was not satisfied. I had heard of the "piano" or "touch" method but did not know of a test that made use of it. I wrote to one of the most prominent court-reporting firms in Chicago, making inquiry for a book that exemplified the new plan. I still have, and prize, the letter I received from the head of the firm. He said the only successful method of which he knew was the one used by his employees when they "touched" him good and hard for their pay on Saturday nights. He thought the "natural" way was the best.
>
> Nothing daunted, I bought a new typewriter (a Fox this time) and set to work to teach myself touch typing. After some months of practice, often working with my eyes shut or with a cloth tied over them, I decided I was ready to introduce the new way at the beginning of my second year at the school.
>
> Our course consisted of two years, junior and senior. The seniors were permitted to continue the old way, while the juniors began on the new. There was much pleasant rivalry, and the juniors had to endure a good bit of jeering at first. After about six months a contest was held between the two classes. The juniors defeated the seniors.

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[1] The Balance Sheet, published monthly during the school year and sent free to business teachers by the South-Western Publishing Company

> A new text that had just appeared was installed and there was no more argument about the merits of the innovation.[1]

Mr. Birch does not give the date of the foregoing experience but it seems obvious that it must have been very early in the annals of typewriting instruction.

Too Many Kinds of Typewriters Hinder Standardization of Instruction

It seems to have been true, too, that there could be little or no standardization of instruction while there were many makes of typewriters on the market and several types of keyboards.

> By 1895, not fewer than 100 different makes of typewriters had been in competition with Remington, of which only two were serious competitors and 80 or more had completely withdrawn from the market.[2]

> Some of the first typing contests of national interest seem to have grown out of a desire to determine what style of keyboard was most desirable. They came at a time when there was strong competition between the shift type of machine and the complete keyboard. There was doubt as to whether the shift with its smaller number of keys increased or retarded the speed. Caligraph was the outstanding competitor of the Remington at this time and it utilized the complete keyboard, one key for each character, while Remington had a single shift to secure the capitals and certain other characters.[3]

Facsimile copies of the work done by each of these machines in a contest anent this point held in Toronto in 1888 indicate decisively that work done on the Remington was far

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[1]Birch, C. E. John Faithful Comments on the Teaching of Typewriting Business Education World, February, 1942,p.536

[2]Knepper op. cit. p. 78

[3]Knepper op. cit. p. 85

superior to that done on the Caligraph.

> Questions relating to the type of keyboard had hardly been settled when the issue of visible writing and "blind" writing became acute. For a long time visible writing had been advocated and so, as soon as the Underwood came on the market and proved its value, it was necessary to find some valid objection to it. The most obvious one, and the one that would have been the most convincing, was to prove that it was not as fast a machine as the non-visible machine.[1]

Some writers feel, however, that contests which were held supposedly to settle this point were in reality merely an advertising scheme for popularizing the typewriter. At any rate, the visible way of writing came to be the accepted way.

Popular Resistance to Touch Typing Still Prevails More Often Than Not

Touch typing, still accepted by only the most progressive school men in the East (which was the first part of the country to accept it), was introduced in the West through the efforts of O. P. Judd, for many years manager of the Remington office in Omaha.

> Judd, writing in 1897, says that "Omaha has become the storm center of the commotion over the touch method of typewriting." Two educators of that city, Van Sant and Mosher, urged on by Judd, entered into a friendly competition, and the rival exhibitions given by their splendidly trained pupils soon spread the method far and wide.[2]

According to what the accounts of other writers tell us, however, touch typewriting spread "far and wide" very slowly. Whether because so many other points which affect skill in

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[1]Knepper op. cit. p. 85

[2]Herkimer County Historical Society op. cit. p. 114

typing took up the attention of those who set the style for what was to be considered correct typewriting procedure or because of the inertia which any improvement has to contend against, the possibilities of touch typing were ignored by the majority of teachers and business schools until after the turn of the century. Only the most progressive, such as

> Griffin, Torrey, Van Sant, and a few others continued to train touch typists, some of them experts, and to advertise its merits.[1]

Many Modern Methods Were Advocated by These Pioneers

The pioneers mentioned in the preceding paragraph were so far ahead of their time and so advanced in their methods and suggestions that apparently they could step into a classroom of today without losing their aplomb. Torrey and Van Sant spoke out strongly for the use of a demonstration machine on a raised table and the latter was also in favor of introducing new reaches and conducting daily warmups by means of unison drills. Van Sant's textbooks have been the basis upon which later ones have been written and, because of his views as set forth in them, he is sometimes called the "father of touch typing."[2] All the above-mentioned teachers emphasized the need for correct posture and took cognizance of the part played by table and chair height in aiding correct posture and eliminating fatigue. But then, as always, the majority were slow to emulate excellent innovations in teaching procedure

[1]Smith op. cit. BEW January, 1947 p. 277

[2]Blackstone and Smith op. cit. p. 5

and desirable practice--and most pupils and teachers dragged along, inefficiently working against many inconveniences which could have been eradicated with a little thought and effort. However, most teachers had not had much experience either as teachers (of typing at least) or as typists and there was no one to teach the teachers, so it would probably be most unfair of us to judge them in the light of what may be expected in our own day.

Young Men Preferred Bookkeeping to Typewriting

Once the typewriter had gone beyond the experimental stage, it became apparent that young men preferred to stick to bookkeeping and to follow the older, established lines of business work. The fact that the first typewriters were mounted on sewing machine stands may have had something to do with the early establishment of the idea that typing was "woman's work".[1] In fact, the first catalogue seems to emphasize the similarity between the two, in appearance, when it says: "The Type-writer in size and appearance somewhat resembles the Family Sewing Machine."[2] Typists, however, were a necessity if sales of the machines were to be kept up, so, since women were beginning to be interested in gainful occupation, business schools saw their opportunity to benefit all three parties concerned (employer, employee, and themselves); and undertook to "sell" the idea of learning to typewrite to

[1]Leffingwell op. cit. p. 347, figure 127

[2]Herkimer County Historical Society op. cit. p. 69

as many venturesome young women as possible. In some instances, schools even offered them inducements to come to the school and be instructed; but before long the fact that knowing how to typewrite practically assured a young woman a job in an office became in itself so great an inducement that no other was needed.

Women Gradually Outnumber Men as Students in Business Schools

Little by little the young women students began to outnumber the young men, but the business schools found no reason to consider this objectionable and were not only willing to teach all comers but exerted themselves to sell the idea to still greater numbers. Since even then they could not produce enough typists to supply the demand, they found themselves very successful, both as a school and as a business.

> Most of them prospered in the years from 1873 to 1893. They became strong, well-established institutions, confident of their future. * * * There were four times as many institutions in 1890 as in 1871; nine times as many instructors; and twelve and one-half times as many students.[1]

Lack of Method in Teaching at This Time

As for the teaching methods used by the average business school, little more was done, in most cases, than to place a student at a typewriter with a book and let him work out his own method of operating the machine, although the teacher may

[1]Knepper op. cit. p. 86

have offered a few suggestions now and then; but the system was apparently adequate for the time since no efficiency experts had put in an appearance in office or factory, and businessmen themselves had not yet had the idea of checking up to see who really did what proportion of the work in their offices.

Effect of Typewriting on Shorthand

Typewriting has been usually thought of as being paired with shorthand. Early accounts do not seem to be specific as to whether the business schools thought it necessary to insist upon such pairing, but it is quite likely that most students accepted it without question. An account of classes in these subjects offered at an early date in Boston shows the usual partnership.

> ....in 1885, Mr. Hibbard (of the Bryant & Stratton Commercial School, Boston) offered both Shorthand and Typewriting to "both sexes." * * * Figures are missing for the number who took advantage of the new courses for the first year, but during the second year there were sixty--about one-tenth of the entire student body. From that time on, the school kept growing and the proportion of women increasing.[1]

> The demand for operators of the typewriter and for shorthand writers was almost insatiable for many years. The opportunity which this condition produced was readily grasped by the business schools, which took advantage of this chance to increase their offerings and expand their enrollments. The manufacturers of typewriters also cooperated to promote the instruction and placement of typewriter operators. There was also no little individual effort in promoting instruction, more especially in shorthand.[2]

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[1]from a booklet, Seventy-Five Years of Achievement (1865-1940) issued by the Bryant & Stratton Commercial School of Boston

[2]Knepper op. cit. p. 86

It is certain that the demand for typists brought about the increase in the number studying shorthand because the use of the typewriter opened the whole field of business communications to those who were adept in these two skills. Previous to this time, there had been little demand for shorthand instruction since the vocational use of shorthand had been limited to reporting, a rather narrow field.

> While 25 of the 131 schools reporting in 1875 offered shorthand, only 18 had any pupils pursuing the subject. At the same time 45 schools reported the offering of telegraphy and 34 of these had students taking the subject, with a total enrollment in this subject of 660 pupils.[1]

The conclusion to be drawn from the foregoing paragraph is that, prior to the use of the typewriter in business offices, vocational opportunities in telegraphy were much greater than those in shorthand.

The Depression of 1893

Then came the Depression of 1893 and many young people did not have the price to go to business school, yet it was more necessary than ever that they be able to support themselves. By this time everyone was aware that the typewriter had come to stay.

> Sales of typewriters were difficult and slow until 1880. In 1881 it is claimed that approximately 1200 machines were marketed. The next year a selling organization was formed and from then on sales progressed rapidly. * * By 1893 typewriters were selling at the rate of 60,000 per year.[1]

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[1]Knepper op. cit. p. 87

[2]Ibid p. 87

Since there were still more typists' jobs than there were persons trained to fill them, by popular demand on the part of would-be employer, would-be employee, and parents, public high schools began to teach the subject. Teachers had to be recruited at first from those who presumed to know a little something about a typewriter (not necessarily expert typists). This meant, in some instances, that these teachers were by no means the peers of the other high school teachers in educational background or outlook, which, added to the fact that the old is always inclined to turn up its nose at the new, led to a sort of "social problem" between business teachers and others and business pupils and others. To insure the business subjects being given their due, in some of the larger cities which could afford to do so, high schools of commerce were established where business instruction might pursue its way unmolested by those who did not wish it well.

The Separate High School of Business

> The movement for a separate high school of business received most of its impetus from Edmund James. (He was) influenced by his experiences in Europe and by a firm conviction that no adequate program of commercial work could be either established or operated in an already organized high school presided over by academic administrators.[1]

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[1]Knepper op. cit. p. 116

Arguments Against the Separate High School

In spite of the strong argument for them and their apparently successful work where tried, the wisdom of a separate high school for business training was constantly questioned. Some of the reasons given were:

> (1) impractical in smaller cities and no cheaper in large ones
>
> (2) high schools are not to be run in opposition to business colleges, but to be more fully educative
>
> (3) it was especially bad to separate students this early
>
> (4) it made it impossible for academic students to get a little of this business training if they wished some particular part.[1]

Difficulty of Getting Teachers

Because of the difficulty of getting adequately-trained teachers of business subjects, salaries were often

> from a third to a half more than is paid to teachers of equal rank in other lines.[2]

The result of such higher salaries was that academic teachers in some instances

> with the normal training in hand, have gone out to pursue courses in the commercial subjects, and then have returned, sometimes, to the same school, to engage in the newer work.[3]

There were also instances where such a change-over was made

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[1] Knepper op. cit.

[2] Knepper op. cit. p. 152 quoting Addresses and Proceedings, National Education Association, 1901, p. 721

[3] loc. cit.

at the instigation of the school authorities rather than because it was the choice of the teacher.

> Up to the present time, there has been no systematic training for commercial teachers, and the high schools have been obliged to accept what the teaching market offered, or to release their own instructors long enough to enable them to acquire a knowledge of the new subjects.[3]

Private Business Schools Continued to Exist

The private business school, although some went out of business at this time continued for those who wished its services. In fact, some who had every intention of eventually making a living in the business world did not take the business course in high school for two reasons: (1) they wished to have the higher social standing of those who took the academic subjects and (2) in many instances it was felt that the private schools gave better training in the business subjects. In some cases, this latter argument held more than a germ of truth since the public schools were not, at that time, held up to any particular standards of achievement. Although standards have risen constantly in regard to the work of the public school in the business field, particularly in typewriting, many people have still felt this way toward it until quite recently.

Effect of Private on Public Schools

The high school naturally imitated the methods of the business school, one good reason being that its teachers were usually the product of such institutions and, in the

[1]Ibid p. 151 quoting Addresses and Proceedings, National Education Association, 1901, p. 721

absence of a study of teaching methods, one tends to teach as he was taught. Furthermore, in this era, subject matter in any course was then thought to be of paramount importance and methods of instruction had been given little or no consideration in most fields of teaching, both academic and commercial.

> During the decade 1890-1899, typing teachers with the exception of a few, followed the standard teaching procedure of giving the student a textbook; showing him how to insert the paper; and telling him to work through the exercises, making a minimum number of total copies and a certain number of perfect copies of each exercise. Most teachers did not yet believe touch typing was practical or even possible for the average person, notwithstanding that the typewriter companies continued to encourage and sometimes employ touch experts for contest and demonstration purposes.[1]
>
> Although Mr. McGurrin and his brother, also an expert typist, advocated its use, demonstrating and lecturing, the method did not come into general use until 1901. The Remington Company survey of American schools, made at that time, reported that about fifty per cent were teaching it in some measure.[2]
>
> The typewriter company demonstrators were the first toanalyze their skills in their attempts at publicizing their particular fingering and training methods. These attempts at analysis were cast in popular language and often were made up on the spur of the moment. Result: many confused ideas with respect to rhythm, posture, speed, and accuracy were carelessly set in motion in this period, and have continued to plague us ever since.[3]

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[1]Smith op. cit. p. 277

[2]Blackstone and Smith op. cit. p. 5

[3]Smith loc. cit.

Demand for Better Instruction Materials

With the introduction of typewriting into the public high schools, came the demand for better instruction materials.

> The sketchy manuals of instruction gave way to more thoroughly prepared texts. As experience was gained by teachers of the subject, methods were developed so that good instruction in typewriting became possible. It need hardly be said, however, that, for many years to follow, there was little systematic instruction given pupils in this subject in the smaller high schools.[1]

The Bryan and Harter Studies in Telegraphy and Other Skills

The Bryan and Harter studies in telegraphy which form the basis for most of the psychology of learning to typewrite were published in 1897 and 1899.[2]

> Far from being interested solely in the minutiae of skill learning, the authors all along had thought of the bearing of their studies upon what we now call vocational training.[3]

> Any study in the field of skill should concentrate first on the performance of persons known to possess a high degree of skill. Otherwise, it is impossible to arrive at any definite understanding as to the true nature of that skill. When making studies of industrial skills, efficiency engineers follow this procedure. After a sufficient number of such experts have been studied, their performances can be analyzed, merged, and consolidated into what efficiency men think of as the "one best way" of performing a particular operation.

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[1] Knepper op. cit. p. 147

[2] Tidwell, M. Fred Research in Secretarial Science American Business Education Quarterly, May, 1947 p. 257

[3] Smith, Harold H. A Classic Research in Human Skills Business Education World, January, 1944 p. 284

> Granting that in such complex skills as shorthand and typing, individual differences will necessitate certain variations from this one best way, we still may expect a much more dependable explanation of particular skills from this particular procedure than can be constructed by any other means.[1]

The bearing which these studies have upon the learning of skills (as set forth in the paragraph above) was not well understood for a long time. In fact, these studies were rather neglected until lately. We are not sure that we fully understand them even yet, or that we have as yet interpreted all the findings in their true light; but we are beginning now to make more use of the facts of these studies and the conclusions drawn from them in planning and interpreting our own research. (See p. 77 and p. 166)

Chapter II -- The Glass Wall Era

Demand for Business Teachers Still Greater Than the Supply

The need for trained business teachers, which had been definitely recognized even in the Business College Era, became even more keenly felt during the Secondary School Period.

> However, progress in the development of facilities was slow, and during no part of this period was there an adequate effort put forth to train commercial teachers. This slowness was not due to a lack of appreciation of the need for training, for the importance of qualified commercial teachers was frequently asserted by the leaders.[1]

However, most administrators still conceived, then and for several decades to come, the paramount purpose of the high school to be to preapre students for college, and for this reason, through ignorance or indifference, seldom seemed to do anything which would make the business department function more smoothly and efficiently.

Even at that early date, there were leaders in business education who had the vision to see what teachers in this field ought to be and to try to have such hopeful thinking become a fact:

> As early as 1897, H. M. Rowe gave sage advice on teacher-preparation and qualifications when he said: "Teachers must know more than they teach.

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[1]Knepper, Edwin G. History of Business Education in the U. S. Bowling Green State University, Bowling Green, O. p. 151

> They should be encouraged toward original investigation, and should be required to keep themselves in close personal touch with the contemporary development of the times in their special lines of work. No teacher can produce the best results in the schoolroom who is not in closest and continuous touch with modern ideas and methods of business."[1]

Recommendations with Reference to Teacher Training Seldom Complied with

Herrick's recommendations, although they tended to give a different emphasis, also called for a broad educational background for the business teacher. He advocated "a broad college education, travel, pedagogical training, and continuous study."[2] That such ideals were not based on fact is brought out by his further remarks. He pointed out that "it was practically impossible to get a college graduate with business experience for commercial teaching."[3]

A very complete statement regarding the proper training for commercial teaching was made in 1912 before the convention of the Eastern Commercial Teachers' Association.

> A successful commercial teacher should know something more of life than the one subject he is teaching, and more of his subject than is contained in the particular text he happens to be teaching from. A commercial teacher should have the broadest and most varied education possible to be procured, because he is ranked with and compared to high school teachers who are college graduates, and have technical as well as liberal education. His professional training should consist of those clearly defined but not distinct lines of work, the science of education, and the art of teaching. * * * * * The commercial teacher

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[1]Knepper op. cit. p. 151

[2]Ibid p. 152

[3]Ibid

> of the future will have heavy demands placed upon him, and will be required to do much more than he has had to do in the past.[1]

But rather than trying to meet the requirements of such idealists or taking any steps whatever toward their fulfillment, the great majority of business teachers "took advantage of the great demand for their services to avoid making preparation beyond the required minimum."[2] The sole source of business teachers at this time seems to have been the business school.

> Business College teachers, of several years' experience in teaching, were often chosen for positions in the high schools. These teachers usually had the necessary knowledge of the technical subjects which they were to teach, but often lacked the necessary liberal and pedagogical training to command respect and insure wise leadership.[3]

The state normal schools which might have been expected to take on this training to meet the public need had difficulties in doing so, especially in the East, because they had been originally intended as institutions for training elementary teachers and consequently found that there was a prejudice against having them prepare commercial teachers for the secondary schools. Herrick pointed out that

> commercial teachers had been largely drawn from private business schools, and that the textbooks were largely from this same source, as were the methods then in use.[4]

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[1]American Penman, Volume 29, 1912-1913, p. 70

[2]Knepper op. cit. p. 152

[3]Ibid p. 154

[4]Ibid p. 153

The teaching situation in the private schools changed to some extent also as the demands there, too, became greater and more teachers were needed.

> As the school business grew and became a separate organization, the reporters chose their better students to "break them in" as teachers. They lacked the skill and practical experience of the reporters, and they naturally emphasized "theory" as apart from "practice". Out of this grew the prevalent attitude of the commercial teacher for "scientific approach," "psychological analysis" of skill, pedagogical arrangement of material, and the invention of many teaching devices. The work was split up into logical divisions--or divisions that seemed logical.[1]

These ideas were likewise carried over into the high school.

> From this arose the idea of "learning the keyboard," "forming correct habits," and that long list of ultra-modern terms that the progressive teacher is supposed to roll about freely on the end of her tongue.[2]

> Not until 1914 was there discernible a marked tendency for typing teachers to stress the advanced, practical applications of skill. This was after a large number of teachers were available who had had office experience.[3]

Textbook Writers Active

Yet, although teacher-training institutions for business teachers of the desired type seem to have been almost non-existent and methods of individual teachers in a status of "free style" interpretation, since the teachers themselves are reputed to have been interested only in remuneration, the textbook writers, according to the records they left behind

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[1] Smith, Harold H. The Teaching of Typewriting The American Shorthand Teacher, March, 1929 p. 242

[2] loc. cit.

[3] loc.cit.

them, continued to be active in the first decade of the new century as they had been in the last decade of the old.

Status of Touch Typing

Touch typing had not become the accepted method for teaching at this time. In spite of its proven superiority and in spite of the efforts of its originator and others, many teachers still considered that touch typing was either not feasible or that the choice of methods was purely an academic matter. Although the Remington Company's survey of 1901 revealed that "about fifty per cent were teaching it in some measure,"[1] and other schools considering its adoption, (see p. 24) "many teachers will bear witness that anything like whole-hearted standardization on touch did not develop until about 1910".[2] It is worthy of mention here, too, that Book (see Chapter IV) apparently thought the choice of method was an "academic matter," at least when he began his experiments since he had part of his learners develop their skill by the sight method and part of them by the touch method.

> With the general acceptance of touch typewriting and visible writing machines in the first decade of the century, came greater demand for qualified instructors and more actual classroom instruction by teachers.[3]

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[1]Blackstone, E. G. and Smith, S. L. Improvement of Instruction in Typewriting Prentice-Hall 1946 p. 5

[2]Smith op. cit. American Shorthand Teacher, March, 1929, p. 241

[3]Knepper op. cit. p. 147

Influence of Championship Contests

The typing contests began to make their influence felt at this time and since they made a great impact upon teachers' thinking about typewriting, they cannot well be omitted from any discussion of instruction, past or present.

> The last informally organized typing contest of national note was won in 1906 by Miss Rose L. Fritz at 66 net words a minute for one hour. In 1907, the $1,000 silver trophy cup, donated by subscription of all American typewriter companies, was offered in a National Typewriting Contest. Miss Fritz won again and repeated in 1907 and 1909, to hold her title for four years.[1]

The previous champion was Miss Carrington, one of the principals in Book's famous experiments in learning to type. She, of course, was not a "learner," but was used, we might say, as the "control".

> (She) won the medal at both the Buffalo and St. Louis Expositions for being the fastest and most expert typist up to those dates. * * * * * (She) had won several international contests in blindfold typewriting, and up to March, 1906, was the champion typist of the world.[2]

The contests were, of course, primarily intended as an advertising medium for the typewriter companies; their influence on teaching was a by-product, which was carefully fostered by the companies. They were at first managed by a committee but this had not proved satisfactory.

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[1]Smith op. cit. BEW January, 1947 p. 277

[2]Book, William F. The Psychology of Skill Gregg Publishing Company, 1916 p. 9

> Between 1900 and 1909 so many conflicting claims were made to the world's typing record" and to the position of "world's champion typist" that contests themselves fell into disrepute.[1]

Influence of J. N. Kimball

To get out of this mess, without discontinuing the contests entirely, which, of course, the typewriter manufacturers did not want to do because of their advertising value, J. N. ("Pop") Kimball was given complete control and ruled for a quarter of a century.

> He ruled with an iron hand, often a bit arbitrarily, but generally with the main aim of improving the work of typists in schools and offices.
>
> The contest rules were gradually expanded from five lines to more than two pages, some of them debatable even yet.[2]
>
> (He) continued to expand and make more specific the rules that governed the championship contests and that were later adopted by most states and districts conducting such contests in this country.[3]

He wrote the copy for these contests and was such a master hand at it that his material is still being used by schools today. No fitting successor has yet been found to fill his shoes in writing this sort of speed practice material.

> He wrote a tremendous amount of the finest kind of practice material for improving typewriting skill; much of it distributed free by the typewriter companies to the schools of the United States and Canada. No one else has ever succeeded in stimulating such a healthy interest in typing skill development on the

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[1]Smith op. cit. BEW January, 1947 p. 277

[2]loc. cit.

[3]Kimball, J. N. obituary Business Education World, September, 1943 p. 41

part of so many students, typists, and teachers as he did--and over more than 40 years.[1]

After the September, 1930, International Championship Contests, held at Richmond, Virginia, he officially announced their discontinuance and retired. During the following eleven years he regularly supplied specially written and printed contest copy and contest "sets" for many state and district contests.[2]

More About Contests

Contest rules were unanimously or almost unanimously accepted by schools and some of them still abide by them; even today, and even among schools which have devised various modifications of the original contest rules, their effect still lingers on.

By 1910, the Underwood, Remington, and Smith Premier typewriter companies had training tables of expert typists. Royal, L C Smith, and Monarch typewriter companies occasionally employed experts in contests and for demonstrations. Competition was intense.[3]

Typewriting contest rules were changed from time to time, sometimes in ways that would be considered decidedly questionable in any sport, and undoubtedly, in some instances, to favor the operators of a certain make of machine. It is difficult for us now to compare some of the records since the conditions under which they were made tend to invalidate such comparisons. For example, the rate on a test reckoned by actual word count would not be the same as standard word

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[1]Kimball obituary op. cit.

[2]Ibid

[3]Smith op. cit. BEW, February, 1947 p. 320

count (one would have to be familiar with the material in order to judge whether it would be greater or less); and the penalties for errors have varied even more.

> Typewriting contest records were pushed steadily upward during this decade (1910-19) until the one-hour record by Margaret Owen reached 143 net words per minute and the 30-minute record was set at 145 net by George Hossfield (1917). Thereafter the adoption of the 10-word-per-error penalty in April, 1918, lowered subsequent records but tended greatly to improve accuracy.[1]

> In 1918, Miss Bessie Friedman, of New York City, established a new world's accuracy record of 132 words a minute (actual count) for 15 minutes with no errors. This record has never been broken. * * Under the present system of counting 5 strokes as a standard word, her record would be more than 120 words per minute.[2]

State and district contests, patterned after these championship contests, gradually began to be held in many localities.

The competition between typewriter companies continued so intense that contests and their results were kept constantly in the eye of both teachers and pupils; and typewriter companies went even farther by giving certificates and other awards to pupils in the schools, which tended to accentuate the effect of the contests on teaching procedures and thinking. (see p. 115)

> The Underwood and Remington (and later the Royal, L C Smith, and Woodstock) typewriter companies cooperated with schools by setting up awards and monthly speed-contest copy services between 1910 and 1920.[3]

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[1] Smith op. cit. BEW February, 1947 p. 320

[2] SoRelle, Smith, Foster, and Blanchard Gregg Typing, Third Edition Gregg Publishing Company p. 47

[3] Smith loc. cit.

All these free or low-cost services had the effect of setting up country-wide standards of greater importance to individual teachers and students than local standards. Students and teachers alike were affected whether papers were sent in from their school or not because the contests affected thinking about the purposes of learning to type.

The typewriting companies did more for typewriting instruction, however, than the mere establishment of rules for contests. Through the training of the experts, certain facts and procedures were established as desirable and correct and others as fallacious and detrimental.

> The correctness of the high-typewriter-table-low-chair position was fully established. All professional operators had adopted it by 1915. Between 1910 and 1912, the same experts proved the need for adequate, well-placed light on the copy and on the work in the machine. It is a matter of regret that neither of these essentials has yet been incorporated into customary school and office practice.[1]

Teacher Considered Unessential to Learning to Type

The typewriting teacher was considered so unessential to the pupil's progress at this time that her main function seems to have been to keep the pupil from mishandling the machine through ineptitude or deviltry and to find every error on every paper. The directions for all work were in the text in detail and, while it was permissible for her to assist those who had difficulty in understanding such directions, most of the pupils were expected to figure them out

[1] Smith op. cit. BEW February, 1947 p. 320

for themselves. In fact, the presence of the teacher was esteemed so superfluous that in some of the smaller schools she was also required to teach a class of shorthand or bookkeeping at the same time that the typewriting class was going on. The only concession that was made in such instances was to have the typewriters separated from the rest of the room by a glass partition[1] so that the noise might not disturb the other class and yet the teacher would be able to see if the would-be typist was trying any "funny business". Some communities did not even consider it necessary to have the would-be typists learn within range of the teacher's vision, but relegated them to an anteroom of some sort;[2] others had the typists in the same room as another class without any attempt to keep the noise of the typewriters from interfering with the other class.[3] This misconception of the dual role of the business teacher persisted in some backward places for an unbelievably long time. Nor had many teachers themselves come to have an insight into what they could do toward really teaching the pupils who had been given into their charge.

> The kinesthetic concept, vaguely recognized by the experts as early as 1890, espoused by Altmaier (Philadelphia, 1901) in a textbook, and described by W. F. Book in his thesis of 1901, had not taken hold of typing teachers.[4]

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[1]by word of a teacher in Southeastern Mass., as late as 1924

[2]by word of a former pupil in Northern Mass., 1918

[3]by word of former teachers in the Northeastern corner of Mass., throughout the 1920's

[4]Smith op. cit. BEW, February, 1947 p. 321

No attention could be paid by the teacher working under circumstances such as those mentioned above as to HOW the pupil did his work; the only thing which it was possible to consider was the quantity and quality of work done by any means whatever, fair or foul. There were even instances where one gifted pupil did some of the typing for one or more pals. The usual custom, partly in an attempt to prevent such chicanery, seems to have been to dole out the paper by five sheets or ten, sometimes with the date stamped on it or some identifying mark. Where pupils bought their own paper, they were often allowed to use whatever amount they saw fit, but in the public schools where the paper was usually furnished to the pupil, most teachers required that each page be finished to the bitter end, regardless of errors, "for practice". The average pupil, once he had made an error, felt that he was thereafter merely putting in his time until the page was filled in, since no papers containing errors could be accepted for credit; therefore, it is doubtful if the "practice" was beneficial and it may in some instances have been actually harmful by allowing the unsupervised pupil to pick up bad habits.

An acquaintance[1] has told of attending a private business school in Boston. One day, while learning to type--or trying to--the problem in the text called for centering a title, or

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[1]Edna Thomas, erstwhile of Braintree, now of parts unknown.

perhaps several lines of typing. Whether she had failed to read the text cannot now be ascertained; but at any rate it was apparent that she had no idea of how to go about centering anything on the typewritten page. She tells how she was sitting there, putting a sheet of paper into the typewriter, getting the typing anywhere but in the center, ripping out the paper, putting another sheet in, for page after page, accomplishing nothing but to put herself in a temper when finally a young teacher in the school came by and said, "Would you mind letting me show you how to do that?"

Some Effects of "Glass Wall" Teaching

Not only were pupils who learned under such "self-service" systems not taught how to center or to set up a tabulation, but many teachers paid little or no attention to whether pupils knew the function of the service mechanisms, or if they taught them perfunctorily, did little or no checking on pupils to see whether or not they actually made use of them. A teacher friend tells of going into her brother's office and watching his typist work; after the girl had left she attempted to use her machine to do some overlooked work for him and discovered that the girl had been working not only without having set tabular stops but also without even having set a margin, right or left.

Many teachers paid no attention likewise to uneven touch, so that businessmen were often bothered by the illegibility of the carbon copies turned out on the job by

the products of their teaching. A friend,[1] working in Boston for a large insurance company just after World War I, told how the bookkeeping clerical workers were obliged to spend a considerable amount of time checking by personal visit to other departments or over the telephone to ascertain what figure that blank space or that blur was intended to be.

Accuracy, First, Last, and Always

One thing, however, teachers did insist upon during this period, and that was accuracy. Apparently they believed that if accuracy was not kept in mind, first, last, and always, it would never be achieved at all, and that all other considerations should be kept secondary to it. Therefore a pupil was required--no exceptions permitted--to make a certain number (usually from one to three) perfect copies of each exercise in the book and was not allowed to proceed to the next until the one she was working on was completed satisfactorily without error.

Individual Differences Accentuated But Not Provided For

Since individual differences were accentuated by the "glass wall" method of teaching, because individual pupils differ not only in their native ability but also in their application of that ability, pupils soon became so scattered in their achievement that it was not uncommon to have every pupil in the class working on a different page in the text, or at least on a different exercise. If this was not true

[1]Alice Baldwin Randall, Melrose, Mass.

in every school, it was certainly true of the majority of classes from mid-year on. Then, if the pupil took a second year of typewriting, he started in the text where he left off the previous year, which increased the discrepancies still more. In many schools no attempt was made to separate beginners from advanced pupils, which in some instances proved to be a serious handicap to the beginners since they often got into bad habits by trying to rattle the keys faster than they were able in an attempt to keep up with their neighbors. These faults, which might be excused where the teacher was required to give his attention to another class while pupils typed also persisted in classes which had the undivided attention of a teacher and even in the schools of cities which in other ways were up to date and progressive.

Influence of the Private Business School on Secondary School Teaching Methods

Under such circumstances, all "teaching" had to be individual and whatever know-how the pupil could not develop for himself by a study of the directions in the text, the teacher would attempt to give him by going over the work with him as each type of work, such as letter arrangement, centering, or tabulation, came up. This method was, of course, based upon the private business school method and was a natural development from it, since most early business teachers, if they know how to operate a typewriter themselves with any degree of skill whatever, were private business

school products. The private business school, by the very fact that it accepted new pupils "every Monday" or on some similar schedule, was of course forced to teach individually and for a long time made a selling point of the fact that the prospective pupil might enter at the time most convenient to him and proceed at his own rate, which was supposed to enable him to finish the course sooner than others if he was capable, but which in the long run and for the majority of people, took him about the same time or longer than class instruction would have done, since when the teacher is forced to teach each new item to each individual separately, many pupils spend much time unproductively waiting for the teacher's attention. Furthermore, some pupils, under such a system, become established in wasteful or really bad habits which must be changed before true progress can be made.

Little Attempt to Develop Speed on the Secondary Level

There seems to have been a feeling in the ordinary educator's mind at this time that typing as taught to the tyro and speed typing were two entirely different things, as different as office-use shorthand and court-reporting shorthand. Probably because of this attitude there seems to have been little serious effort made toward the development of speed since the belief was that accuracy must be obtained first in all writing before it was permissible to

think of speed. And that, just as we do not attempt to turn out court reporters in our high school shorthand classes, neither should we expect to turn out really fast typists from the high school typewriting class. Business had not yet grown demanding in what it expected of its typists and was still willing to employ all who sought employment, so no one worried over this situation.

Methods of Attempting to Insure Touch Typing

Since typing teachers were coming gradually to be sold on the concept of touch typing as the only efficient way, the necessity for having to teach another class while the typing class was "practicing" posed a problem since many of the pupils would watch their fingers if they thought the teacher was too busy elsewhere to know the difference. To insure greater likelihood of operating the machine by touch from the very beginning shields were invented. No definite reference to the first shield has been located but Book mentions in his report of the experiment which was carried on in 1904 that

> During all the T.M. (touch method) writing, for both kinds of practice, the keys were covered by a thin board fastened to a standard in such a manner that free movement of the hands was allowed while it shut out completely every part of the keyboard from the view of the learners.[1]

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[1] Book, William F. The Psychology of Skill Gregg Publishing Co., 1925 p. 13

This may have been the earliest use of the shield. However, typewriter companies had them made of metal, each styled to fit their own make of machine, and for several decades sold them to schools whenever new typewriters were bought. Some schools did not discontinue their use until certain developments in the manufacture of the machines (just before World War II) made it impossible to attach one to the machine. The general practice with reference to such shields was to compel the beginning class to use them, at least for part of the year, but to have the advanced pupils type without them. It may sound queer but pupils have been known to complain that they found the absence of the shield confusing for a few days when the change was made.

With reference to devices for learning the touch method, Clem says:

> While students can make more rapid progress without any of the devices that force them to write by touch, yet only mature students, and not all of them, have sufficient will power to become real touch operators without using some one of these devices. Some teachers, however, possess such unusual personalities that they can control their classes in this respect. * * * Here is an interesting statement from a teacher regarding this matter: "The immature pupils cannot see beyond the required perfect copy, and will, perhaps unconsciously, watch their keys while you are busy with others in the class. * * * I find that the most convenient, cheapest, and most available blinders are ordinary goggles. Paper can be inserted to cover the glass, the rubber strap can be adjusted to the individual needs, and there is no pressure on the eyeball."[1]

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[1]Clem, Jane E. The Technique of Teaching Typewriting Gregg Publishing Company, 1929 p. 101

In Somerville High School, just after World War I, pupils who watched their fingers were required to bring a blindfold from home for the next day's use.[1]

There were teachers, however, even at this time, who took a different attitude on this subject. Clem quotes another teacher:

> "There should be no shields over the keys of the machine. Make it a matter of pride to the student to keep his eyes away from the keyboard. Students can easily be made to take pride in accomplishing this feat."[2]

The device of which Clem seems to be most in favor is described by her thus:

> Aprons, to be worn by the student, may be made by the teacher or students from a piece of cardboard and some tape. This device is not an encumbrance to the free operation of the machine and it forces the student to write by touch. He cannot look under it, for it moves always with him, thus blinding his line of vision to the keyboard. Some teachers complain that with either shields or aprons it is impossible to watch directly the finger movements of the students. This criticism is not a serious one, for from the next aisle the teacher can see the student's fingering, and this is a far better place from which to watch, because the student is not conscious that he is being watched.[3]

Still another device, and one which is still used in some schools at the present time, is the blank keyboard, blanked either by covering the keys with celluloid caps or by having the typewriter company send a man at the time machines are purchased to blank the keys by removing the

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[1]on the word of an offender in the typewriting class at that time

[2]Clem <u>op. cit</u>. p. 101

[3]Ibid p. 102

letters from the keys.

However, no matter what device might be used, in order for it to be successful, it has always been necessary for the teacher to "sell" the idea of touch typing to the pupils; otherwise pupils will manage to circumvent almost any device and still type by sight. This has been especially true in cases where pupils have somehow got the impression that this was a game in which teachers and pupils were merely trying to outsmart one another. Pupils have been known to peek under the shields, although it is impossible to maintain good posture while doing so or even a comfortable position for typing; pupils have been known to remove the celluloid caps and even to carry them off; and a classmate of mine[1] was faced with an advanced class who watched the type as it rose from the type basket when the keys were struck. Yet in the days when the typewriting teacher was not free to watch her pupils at work, devices of the kinds mentioned above often seemed indispensable to the teaching of touch typing and were found in some form in almost every secondary school.

Emotional Blocks to Learning Sometimes Caused by the Accuracy Approach

Emotional blocks to learning to operate the typewriter with ease and fluency were sometimes built up by the perfect

[1]Marion Hunt, Provincetown, 1924. (Typewriters in those days were more open at the front around the type basket. Such a thing would be impossible with today's typewriters.)

copy standard as handled by many teachers or by building up self-consciousness in pupils as the teacher watched them type or by threats of blindfolding or other procedures equally unattractive in pupils' eyes.

> ....it is possible that lifelong emotional blocks can be developed in the typing and shorthand classroom. One well-known business educator says that the very sight of a typewriter causes him to think of his fluent cursing vocabulary, for it was in his high school typing class that he learned apt applications for each word in it. Although he can force himself to use a typewriter when the need is really urgent, he does almost all his voluminous writing in longhand. An emotional block built by a teacher's neglect of the human element has cost him many hours of leisure or of profitable work. Another successful business educator had a home-economics teacher for his typing teacher. She knew little about typewriting and even less about methods of teaching it. Yet she taught him so well that he is now an expert and does all his writing on the typewriter, rarely ever needing to correct his first copy.[1]

Little thought was given in those days either to the human element or to individual differences. A certain number of perfect copies, preferably produced by touch typing, was the goal, and little consideration or attention was given to anything else. There were two rather contradictory tendencies at this time: a tendency toward low standards of achievement in some instances and in other places a high percentage of failure among typewriting pupils, especially beginners.

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[1]Stroop, Christine The Human Element Business Education World, May, 1948 p. 519

Non-Cooperation on the Part of Administrators and Academic Teachers

If the high school teachers of academic subjects thought they had a just grievance against the teachers of business subjects because of their sometimes unprofessional viewpoint and lack of educational background--and it is admitted that such criticisms were often justified--it is equally true that business teachers also had a just complaint against both the academic teachers and the administrators of the high schools of those days. It was assumed that, while it took an intelligent pupil to make good grades in academic subjects, any moron could pass the business course. Some high schools[1] refused to put pupils' names on the honor roll when they attained high grades if they were taking the commercial course because of this prejudice. It was not until college students and a few academic teachers, because of the practical demands of their educational or private lives, began to enroll in shorthand and typewriting classes and did not find them as easy as they expected that this vicious theory was finally laid; and even now it sometimes needs to be exorcised again. But in the first three decades of the twentieth century, pupils who failed Latin or math or French were often shunted into the commercial course. Since this

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[1]Newport, Rhode Island, on the word of a former pupil who cited the practice as exemplary.

was apt to occur any time from the end of the first month of school up to Christmas, business teachers carried a heavy burden of unpaid extra tutoring of such pupils to bring them up to the point where they could enter the class. (One may well believe that the same pupil could have passed the academic subject from which he was dropped had the same amount of individual attention been given him.) Several schools in the greater Boston area where this was an established and approved practice could be named, but inasmuch as they have since seen the light, it is doubtless better to let by-gones be by-gones. An even greater sin, from the viewpoint of parent and pupil, was the discouraging of bright boys and girls from taking the business course on the grounds that they were "too bright for that". Such pupils, after taking the college course, often found that they were barred from college for financial reasons or, in some cases, even the lack of inclination for higher education. Then they were forced to seek employment without having much to offer an employer, which meant greater difficulty in obtaining employment, working for less money, or taking a course at a private business school.

Purpose and Motivation

The purpose of the typewriting course was assumed to be wholly vocational and no thought was given to motivation since it was likewise assumed that those who took the course were sufficiently interested in acquiring a degree of skill

that would be acceptable to business that such matters would automatically be thus taken care of. Many pupils fell by the wayside because of the perfect copy system, however, and there are actual cases in the memory of both pupil and teacher of pupils who got stuck on some particular paper early in the book and never got any farther. Those who found concentration not too difficult typed with bated breath lest the fatal error appear--breath which became more and more bated as the fateful last line approached, whereupon the hands sometimes broke out in a sweat which made it difficult to go on.

Inter-Acting Effect of Improved Models and Good Teaching Practices

Some changes in teaching practice have been brought about by changes in the typewriter itself as it has been improved to more nearly meet demands of specific business tasks. It is also true that pedagogical ideas with regard to teaching have slightly influenced the machines. There have been periods when machines for school use and machines for office use have varied in some details. One example of this is the blank keyboard machines which have been so popular in some schools. It has also been said that school machines in the early part of the twentieth century had neither backspacer nor margin release,[1] presumably based on

[1] on the word of Margaret C. Kirby, now retired, formerly teaching at Braintree High School

the theory that what the pupil cannot use he cannot abuse. Changes in the tabulator mechanism and improvement therein have also enabled teachers to improve their teaching methods in regard to teaching tabulation and to have pupils work on a production basis in turning out such work.

Changes in Fingering

Although it is difficult to find in print, there is some indication from the reports of experienced teachers that the fingering on the letters themselves has been changed from time to time. A teacher-acquaintance claims she was taught to strike m with the middle finger;[1] and several others tell of having advanced pupils who struck c with the left index finger, claiming when corrected that they had been taught that way. Also there is this little note from a text now out of print:

(Written to Mr. SoRelle of the Gregg Publishing Company)

> I belong to the pre-Fordian age--the age when girls wore long hair and spaced with both thumbs. My antiquity has not bothered me until recently. I have been consigned to work in the typing room of one of our leading business colleges. This college uses the New Rational, which advises that the left thumb is about as useful in typing as the proverbial "bump on the log".
>
> Will you tell me why you have found this to be the better method? I cannot teach anything I do not understand and, like thieves and doctors, we must agree on fundamentals or the public will lose confidence in us.[2]

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[1]Mildred B. Ahlgren, now teaching at Braintree High School

[2]SoRelle, Rupert P. Rational Typewriting Projects Gregg Publishing Company, 1927 p. 60 (given as a letter for the pupil to set up correctly and type)

Apparently the idea at the time this teacher learned to type was to split the work of spacing between the hands, the theory being that if the typist ended a word with one hand, he should space with the other (something like the way we shift for capitals). Whether most people, being naturally right-handed, came to space with the right thumb only, regardless of what they were taught, or whether pedagogues and researchers in typing came to the conclusion that since the left hand does the bulk of the writing, the right should do all the spacing is a debatable point to which there seems to be no verifiable answer. The fact remains that all textbooks now instruct the student to use only the right thumb on the space bar. Observant teachers, however, frequently notice that left-handed pupils sometimes use the left thumb either to some extent or exclusively regardless of instructions.

A comparison of early and late editions of typing textbooks will show that the fingering on the figures was changed in the 1920's, which, while it looks extremely simple on a chart as it merely moved the dividing line between the hands one key to the left, in actual fact changed the fingering of almost every figure key. That there was not much comment about this change then or later is doubtless due to the fact that few persons automatized the striking of the figures and therefore were not much affected by the change. It is interesting to note, however, that this change

has been overlooked or ignored by some teachers; Pepe's book, Personal Typewriting in 24 Hours,[1] gives the old fingering for the figures and a recent magazine article which purports to teach anyone who is interested enough to practice how to type in six lessons also shows the old fingering on the figures.[2]

Analogies between Typing and Telegraphy and Typing and Piano

Studies in psychology as applied to typewriting at this time usually made use of analogies between learning telegraphy and learning to typewrite since the learning process for both was assumed to be very similar and the same trouble with "plateaus" occurred in both. The Bryan and Harter studies[3] in telegraphy and other skills were made in the late 1890's, but they seem to have been somewhat ignored until recently although Book in his Learning to Typewrite[4] gave them considerable mention. However, this book was not published until 1925; in his earlier Psychology of Skill[5] he has not gone into much detail about them. These studies are now held to be very valuable in the interpretation of what takes place while skill in both shorthand writing and type-

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[1] Pepe, Philip S. Personal Typewriting in 24 Hours Gregg Publishing Company, 1947

[2] Stanton, Barbara Basic Typing Woman's Day, a magazine sold only in A & P stores, June, 1948 pp. 34-35

[3] Bryan, Wm. L., and Harter, Noble, Studies in the Physiology and Psychology of the Telegraphic Language The Psychological Review, January, 1897

[4] Book, Wm. F. Learning to Typewrite, Gregg Publishing Co., 1925

[5] Book, Wm. F. Psychology of Skill, Gregg Publishing Co., 1925, evidently a republication of an earlier issue

writing is being developed. (see pp. 25-26) They have been referred to by several writers in recent magazine articles.[1/2]

It was also assumed that there was much similarity between learning to type and learning to play the piano. Book makes some mention of this, especially in his earlier book. Methods which had been successful in teaching the piano were copied insofar as they could be made applicable to learning to type, although such transfer of methods was not actually begun at this time but continued from an earlier period. It is interesting to note that methods in teaching the piano have changed as radically in recent years as have those in typewriting.

The "Logical" Approach

In methods of presenting the study of business subjects to the pupil around the turn of the century and for some little time afterward, educators seem to have felt that all material must be presented in a logical fashion, ignoring the fact that skill and logic have little connection with each other.

> It is generally believed that the logical order of forming the habits to be acquired in any instance of learning is also the most effective way of acquiring them. But studies of learning have shown that this is not true; that habits rarely or never develop in this way. * * * * One duty of the teacher is to determine what (this) most natural and economical

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[1]Smith, Harold H. A Classic Research in Human Skills Business Education World, January, 1944, March, 1944, and later issues

[2]Tidwell op. cit. p. 257

> order of acquiring the habits to be formed in any instance of learning is, and then to arrange the instruction in such a way that this most efficient method of acquiring the necessary habits will be followed throughout the practice instead of some artificial or logical order, which, though successful, is much less effective.[1]

Effect of the James Psychology

When William James was making his great impression on educators, the formation of correct habits and never permitting an exception to occur was considered the epitome of good teaching practice.

> The older writers were impressed with the significance and irretrievable character of an individual's habits. As James used to say, after a certain age, after the early twenties for most men, one's habits are definitely and permanently formed, only along the same old lines can new habits or even new thoughts occur .... * * * The carelessness of the parent, the mistake of a poor teacher, or an unfortunate situation in the child's environment, is always likely to make a permanent association with lasting injury.[2]

The theories expressed in the above paragraph may be considered to be the source of the perfect copy system of teaching typewriting.

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[1]Book, Wm. F. Learning to Typewrite op. cit. p. 443

[2]Burnham, Wm. H. The Normal Mind D. Appleton and Company, 1924 pp. 172-173

Chapter III -- Developments from World War I

This War Not the First to Affect Women in Business

It is interesting to note that in modern times wars of several years' duration have had a marked effect on business and business teaching. Most people are not aware that this trend began, not with World War I, but with the Civil War.

> The need which first called the typewriter into being, the problem of clerical time and labor saving is always with us; it changes its form, but never its essence.[1]

When General Francis Elias Spinner, a close friend of Philo Remington, became Treasurer of the United States (1861-1875)

> he found a condition similar to the one with which all of us were recently familiar during the Great War. (referring to World War I) The men had gone to war in such vast numbers that there was everywhere a scarcity of workers, and General Spinner conceived the idea of employing women as government clerks. This was a startling innovation in those days; nevertheless several hundred women were appointed to government clerkships through his agency.[2]

This, even before the widespread use of the typewriter, helped to break down the barriers against women in business and the grateful women of Ilion, New York, the General's home town, erected a statue to his memory. It is a coincidence that Ilion was also the site of the manufacture of the first practical typewriters, made by the Remingtons.

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[1]Herkimer County Historical Society, Herkimer, New York, The Story of the Typewriter, 1923 p. 131

[2]Ibid p. 138-139

Effect of Increased Demand for Typists because of World War I on Teaching Methods

During World War I the demand for typists, always slightly more than the supply, increased to such an extent that something had to be done about training more typists quickly, and since the schools did not seem able to cope with the situation alone, the typewriter companies again stepped into the breach and not only organized training programs for typists but also conducted special courses for teachers in many cities to show how mass teaching could be carried on.[1] This sounded the knell for individual instruction although isolated instances of it still existed for many years afterward. In these teacher-training classes

> they introduced on a wide scale the unison method of dictating letters, strokes, words, phrases, and paragraph matter; and the slapstick and the phonograph record--unfortunately, too often without careful observation of their respective limitations. The result: misinterpretation by teachers, exaggeration and wasteful use of the devices, and ultimately popular repudiation of some of them.[2]

However, some teachers had the faculty of reviving what they had found helpful among these devices. B. J. Griffin and Rupert P. SoRelle did not allow the use of the phonograph to die out but developed the Gregg Company's rhythm records for classroom use. Dictation to the beginning typewriting

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[1]Smith, Harold H. Teaching Methods in Typewriting Business Education World, February, 1947, p. 320-321

[2]Ibid p. 321

[3]Ibid p. 321

class on a letter- or stroke-level for the purpose of maintaining metronomic rhythm was for a time extremely popular among the younger teachers of this period. Some teachers had various members of the class take turns dictating the letters of the words written, which gave everyone the feeling of taking his part in worthwhile group activity. Psychologists about this time were also making discoveries about mass psychology which showed that the average person does better at many tasks while working with a group, even though apparently handicapped by bustle and confusion, than he does while striving alone under what appear to be better working or learning conditions. It was about this time, too, that alert teachers discovered the power of the human voice in controlling the responses of a group in the development of skill. For this reason, these teachers generally dictated to the class themselves rather than having a pupil do it. Still another practice to control the pace of the typing was the striking of a ruler against the desk, or some other manner of making a sound, to beat out the time for typing. Some teachers used the metronome.

Arguments Against Metronomic Rhythm

The drawback to all these metronomic devices was, of course, that it held the faster pupils back to the pace of the slow ones, and in many cases prevented the rapid development of skill by forcing the typist to write all words and strike all keys at the rate he was obliged to use on

those which were difficult for him. But quite a number of years elapsed before this conclusion was drawn and in the meantime metronomic rhythm was almost an end in itself in the teaching of typewriting.

Arguments Against the Use of the Phonograph

The use of the phonograph, too, in the hands of those who lacked musical knowledge or understanding of its coordination with the development of skill in typing usually deteriorated into a mere holiday for teachers and pupils alike rather than the benefit it could have been. There was oftentimes little judgment shown in the choice of records, and since the choice was frequently confined to those which the pupils brought in, those which were played were usually the ones which were popular, whether or not they had any value for typing. (See p. 112)

Teacher Shortage and Its Effect on Teacher Preparation

The shortage of teachers was so great as to be a headache to administrators since, unless they were at the head of a school system which paid better than the average, they were apt to lose teachers in the middle of the year as well as at the end. Perhaps there has never been a time when so many teachers changed jobs so frequently.

> During and after the War there was such a tremendous increase in the demand for typing teachers that many changed over from other occupations. Few

> of these new typing teachers could do better than grope their way over the keyboard.[1]

For some time thereafter the theory seems to have been accepted, educationally speaking, that there was little connection between the ability to do and the ability to teach; and such teachers not only seem to have had no trouble in obtaining positions but even to have avoided being criticized to any great extent. In fact, as late as 1928, a salesman connected with a well-known business textbook publishing company told publicly how he had been on the point of recommending a certain young teacher for a better position and had asked her to type a letter for him having to do with this situation. Upon her confession that she was unable to do so, he announced that the deal was off, whereupon the young woman, according to his story, became indignant, maintaining that he was being unjust to expect a teacher to practice what she taught.[2]

Some office workers also took up teaching, and whatever may have been their shortcomings in other respects, at least they could type acceptably and should have had some idea of what their pupils would be required to do in an office since they themselves had earned a living either as typists or stenographers, usually the latter. The educational and cul-

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[1]Smith op. cit. BEW, February, 1947 p. 321

[2]Simmons College Summer Session, 1928

tural background of many of these "emergency" teachers, however, was noticeably below that of the other teachers and gave the academic teachers a further excuse for looking down upon the business department. Teacher training institutions encouraged such recruits from the business world to add to their education and to obtain some pedagogical training by offering special courses of shorter duration than the regular courses. These special courses were still being offered at the Salem Teachers' College (Salem, Massachusetts) as late as 1925 and were patronized not only by women who had spent several years in the business world but also by men who had served their country in World War I. Other colleges and universities little by little began to organize teacher-training courses in business subjects, many of them "sneaked" into the curriculum or "lobbied" in by those who understood the need.

> Even the teacher trainers often had to hide their lack of typing skill from their students. Course content was often dictated or dominated by the theories of the education departments in those institutions. The trainees were stuffed with psychology and pedagogy, courses in school administration, social problems, and so on. Unfortunately, few properly mastered the subject matter, practical teaching art, and demonstrable operating skill they needed to train vocationally competent typists.[1]

At the other extreme, graduates of business schools, most of whom had no other qualifications for teaching than the skill

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[1]Smith op. cit. Bew February, 1947 p. 321

necessary to do the work in an office for which they were presumably training pupils, still had no difficulty in obtaining teaching positions. Many city schools for years after the end of the War numbered among the members of their faculties teachers who had left an office position during the War to take over the teaching of shorthand or typewriting at the request of some desperate principal or superintendent.

Business Conditions Somewhat Similar to Those of World War II

Business conditions during World War I and extending into the early 1920's were such that the high school graduate had no trouble in getting a job immediately upon graduation. There were also some instances of pupils being released from school early in order to go to work because Business felt itself in the same desperate need that we heard so much about during World War II.

Caught in the middle between unsympathetic administrators who still believed that the primary function of the high school was to prepare for college and the lackadaisical attitude of Business which made only the most perfunctory inquiry into the applicant's qualifications before hiring him,[1] some unscrupulous business teachers allowed themselves to

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[1]A successful candidate for a job with a famous Boston insurance company in 1920, on her first day on the job, was told that her work was to be typing, and was then asked if she knew how to use the typewriter; and has always had the impression that the Company was willing to attempt to teach her on the job if necessary--a Saugus High School graduate of that year.

fall into careless ways, following the line of least resistance; and the Commercial Course in many secondary schools gained the unsavory reputation of being a "snap" course, an opinion in some instances not unjustified. This, in its turn, led to the later refusal on the part of some business houses to employ high school graduates. Conscientious, meticulous teachers, when they became aware what was happening, spent many years in an effort to overcome the faults which were allowed to gain such headway at this time. It took many years to put across the idea that the Commercial Course should not be used as a dumping ground for the incompetents from other curricula; and the attempt to establish standards of accomplishment which will be acceptable and meaningful to both Business and educators is still going on.

Results and Implications of the Testing Program Used by the Government during the War

The testing program developed by the Government during World War I in an attempt to fit each draftee into the niche where he might be of the most value had great impact upon the thinking of psychologists and the thinking of teachers. Such thinking was mainly bent toward the prognostication of the possible success of the individual in a given kind of school work and potentialities of guidance toward the kind of work where he might be most able and happiest. The tests used during the War upon those in the Service were the forerunners of a wide array of intelligence, achievement, apti-

tude and other types of tests, some of which are still imperfect instruments for the purposes for which we should like to use them. The study and work in this field which was begun then has by no means reached its end but seems likely to go on for some time to come.

General Effects Were Far-Reaching and Long-Lasting

All things considered, World War I may be said to have had a widespread and beneficial effect upon business education and teaching methods used therein, and especially upon typewriting. It is true that at the time the ways of error were occasionally fallen into, not merely from ignorance of better ways, but because slipshod ways of doing things get by in times of stress and emergency; but the good effects of discoveries about learning made then were much more long-lasting and far-reaching throughout the country as a whole than were the temporary undesirable ones.

Chapter IV -- The Experiments and Opinions of William F. Book and Their Influence on the Teaching of Typewriting

Probably no other psychologist or any typewriting instructor had as profound and extensive an influence on the teaching of typewriting as William F. Book. His influence may be said to have been both good and bad--good in that he was among the first to recognize the kinesthetic concept in skill learning (1901);[1] bad in that he bound typewriting pupils to the woes of the perfect copy for many years. In addition, his books, The Psychology of Skill[2] and Learning to Typewrite, contain the glimmer of many an idea that has since been given full emphasis and incorporated into present-day good teaching practice in the development of typewriting skill. Examples of such ideas are:

Kinesthetic concept of skill learning

Economic periods of work and rest

The importance of a warming-up period

Value of demonstration in teaching what is new

Effect of physical conditions in environment on learning (temperature of room, general appearance of room, etc.)

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[1]Smith, Harold H. The Story of Teaching Methods in Typewriting Business Education World p. 321

[2]Book, William F. The Psychology of Skill Gregg Publishing Company, 1925 (republication of earlier issue)

[3]Book, William F. Learning to Typewrite Gregg Publishing Company, 1925

Importance of details like table and chair height

(a) Should be correct for the individual

(b) Should not vary from day to day

Need for teaching the efficient use of the service mechanisms

Importance of the learner's feeling successful

Need for motivation, especially after the beginning stages of learning are passed

Value of having learners know what they are trying to do (a point made also by Lessenberry recently)[1]

The need for studies into the causes of errors (although he apparently believed this to be much simpler than has been shown to be the case)

Need for attention to individual differences

The individual should improve on his own past record rather than being pitted against others, although group may be pitted against group

Typewriting may be used as a means for the improvement of spelling

Theories to which he subscribed but which are now considered to be outmoded are:

The method of getting the copy (reading ahead of where one is actually typing)

Absolute and invariable accuracy

Writing slowly at the beginning so as to insure accuracy

Metronomic rhythm

Practicing frequently on unfamiliar or difficult words for the sake of absolute rhythm in typing

The importance of finger exercises

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[1]D. D. Lessenberry in an unpublished lecture given at Boston University in the Spring of 1948.

Pupils never being allowed to look at the machine in touch typing

The belief that words and phrases could not be automatized until late in the learning process

The value of the teacher's keeping error charts for each pupil in her class and basing remedial drill for the class upon a study of such charts

The Author's Purpose in Conducting the Experiment

The author's statement in regard to his purpose in undertaking this study follows:

> In September, 1904, the writer began a detailed study of learning to typewrite with a view to ascertaining what a learner must do to acquire skill in the manipulation and use of a typewriter. * * * This was five years before the time and motion studies of Taylor and Gilbreth were published (see p. iv and v) But this detailed analysis of learning to typewrite was undertaken in the belief that if these facts could be obtained for this type of learning, they would enable a teacher to do for the learners of typewriting what the studies of Gilbreth and Taylor later enabled them to do for the workers in the two occupations which they analyzed in detail.[1]

We cannot say that he achieved his purpose, but somebody has to make a beginning and, in his heyday, he certainly wielded a mighty influence until later studies caused his theories to be superseded by better ones.

Comparison of the Two Books

The earlier book, The Psychology of Skill, gives the greater number of details with regard to the experiment in learning to typewrite upon which both books are based.

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[1] op. cit. Learning to Typewrite p. 157-8

This experiment was begun in September, 1904. Although the earlier book implies the importance of accuracy, it is the later one, Learning to Typewrite, which puts the tremendous and overwhelming emphasis upon making every motion only in the right way and never allowing an exception to take place.

Details of This Experiment

The details of the psychological experiment given in The Psychology of Skill can be a source of both amusement and amazement to the typewriting teacher of today. In introducing his account of the experiment, Book says:

> We do not know how any special school subject is actually learned or how any specific skill is acquired because no complete psychological history of their learning has been recorded. * * The present study is an attempt to determine all that took place on the conscious side as skill in typewriting was acquired.[1]

For verification of what the learner thought took place in the learning, objective data in the form of drum records showing several aspects of what took place on the physical side were made as each one typed. Among other things, these showed (by the pulse record) whether the subject was actually making an effort or giving his work full concentration when he thought he was.

Contemporary Interest in the Experiment

When first written up (soon after the experiment), the entire edition of this work was exhausted in two years.[2]

[1] op. cit. The Psychology of Skill p. 2

[2] Ibid Preface

This fact seems to indicate that there must have been avid interest in this subject at that time, although whether this interest was shown by psychologists or by persons concerned with the determination of the best methods of teaching typewriting we cannot be sure.

Both Sight and Touch Methods Used in This Experiment

As stated previously, (pp. 9-12 and 24) considerable time elapsed after the inception of touch typing before it was widely accepted in business education. Book's account shows that opinion in this respect must have been in a state of transition at the time of his experiment, for he had some of his subjects learn by the sight method and some by the touch method.

Persons Taking Part in the Experiment

Not many persons took part in his experiment, according to modern views, and according to his account they were a motley crew, consisting of (reading from the top down): Miss Carrington, recent (at that time) world champion; two sight typists, who could type at 40-45 words per minute; a touch typist, who could type 50 words per minute; 3 psychologist learners, X, Y, and Z; and four other learners who were taken through only the beginning stages of learning to type.

The thought occurs to the reader that perhaps psychologists do not make particularly apt typing pupils as the following passage is read:

> The following phrases are taken from the experimenter's observations of Z in his earlier tests: "Hammers the keys, spells so loudly that he can be heard in all parts of the room, constantly wriggles about on his chair, lifts up the table with his knees, grits his teeth, trembles and literally uses his whole body to write." Z's introspective notes for the period showed that the waste on the mental side was equally great. * * * The same was true of the other learners. * * With increase of skill the learners gained better control of the disposition of their energy. * * Almost no energy was wasted.[1]

It would seem that these "guinea pigs" certainly learned the hard way. Such a performance is rarely, if ever, seen today.

Materials Used for Learning Purposes

Whether he considered the texts of that day of little value to his experiment or whether he gave them no consideration at all, it is impossible to say looking at the matter from this distance, but his account of the material used for learning and practice is another cause for astonishment and wonder to the unprepared reader of our own day.

> Z wrote, "A quick brown fox ...." (etc.) ten minutes each day for 61 days. * * X wrote the same sentence 120 times each day for 70 days.[2]

> Except for the "practice sentences" all writing for both methods of learning was from copy. Three plain articles in the American Journal of Psychology and Munsterberg's book, "Psychology and Life" furnished the material copied.[3]

To the teacher of today the last mentioned material seems a sort of nadir of unsuitability for its avowed purpose.

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[1] Op. cit. Psychology of Skill p. 98

[2] Ibid p. 12

[3] Ibid p. 13

Methods Used in Learning the Keyboard

Book's learners may have used the first "shield" (see p. 43) and they may also have used the first keyboard chart. (Although it will be remembered that McGurrin also used a self-devised chart when he was teaching himself to use all fingers in his attempt to imitate the girl who could type "while looking out the window," other learners seem not to have followed such a method until this experiment--or if they did, they left us no record of it.)

> The first task of the subject was to learn the keyboard as a preliminary to the formation of an association between the letters in the copy and the corresponding keys on the machine. * * Y learned (it) by committing it to memory. * * He could draw it correctly from visual memory when he began his first test.[1]
>
> (X used a different method, not finding Y's easy in his case. He) made an actual map of it instead, which he kept before him in his practice as long as needed. * * If he did not know the location of the letter wanted, he would refer to his map moving his fingers to the desired key and striking it while looking at the map.[2]

Apparently the concept of asdf ;lkj as the home keys had not become commonly accepted at that time because Book states that getting the fingers to the proper keys was difficult for the touch method writers, "especially for all those letters situated near the center of the keyboard. The little fingers had to be kept constantly on the 'a' and ';'

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[1]Ibid p. 27 and 28

[2]Ibid p. 29

keys."[1] It seems quite likely that the use of the eight home keys was an outgrowth of touch method teaching and did not become common practice until the touch method itself became the accepted standard for teaching. Certainly the upward and downward reaches from a home key for each finger is a much more felicitous way of learning to type by touch than anchoring the little fingers and counting in, key by key, until the one wanted is reached, as described by Book in quoting one of his touch method learners.[2] It may be that the report of this experiment was in itself a booster for touch typing since the statement is made therein that it is much the more economical method of learning to type and that even the successful sight operator must eventually approximate something like touch operating if he ever reaches the expert stage.[3]

Book's Summary of How Learning to Type Takes Place

Careful consideration of the way the learning took place caused Book to draw up the following summary, which has been, perhaps, the most-quoted passage from his works; (it occurs in both books, although not worded exactly the same in both instances)[4]

> The earliest writing involved, therefore (1) getting the copy; (2) an actual spelling or think-

[1]Ibid p. 31

[2]Ibid p. 30; again mentioned on p. 35

[3]Ibid p. 59

[4]Psychology of Skill p 31 and Learning to Typewrite p. 188

> ing of each letter to be made; (3) mentally locating it on the keyboard; (4) getting the proper finger to the key; and (5) again pronouncing the letter or initiating the final letter-making movement.

He continues:

> The first improvement in the writing was due to "short circuiting" each of these steps. As practice continues each step of the process becomes easier and easier until all fuse into one.[1]
>
> It marks a long step forward in the learning when the subject acquires the ability of going directly to any key desired merely by attending to the motor-tactual "feel" of that particular letter-making movement. Improvement in learning to make this movement directly is very gradual and slow.[2]

Modern teachers take more account of the kinesthetic concept in the teaching of typewriting than Book may have dreamed possible. Further studies are being considered or are under way that we may make even fuller use of the aids to learning which Nature has put at our disposal when we understand the physical and mental makeup of Man enough to work with Nature rather than against her.

Book's Theories About "Getting the Copy" Not Tenable Today

His ideas about "getting the copy" do not coincide with modern views

> In writing by the touch method the learner first reads a bit of copy, then writes it on the machine.[3]

This is in contrast to the modern method of having reading

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[1]Psychology of Skill p. 31

[2]Ibid p. 35

[3]Learning to Typewrite p. 123

and writing go along together. He also recommended that the typist read ahead in the copy as he wrote so as to be ready for any unusual or difficult words that might crop up, in order not to break the rhythm of the writing. However, modern studies of errors have shown this to be one of the causes of error (i. e. anticipated letters are sometimes typed before they occur in the copy) and that it is therefore to be discouraged rather than otherwise.[1] (See p.130)

Emphasis on Concentration

He believed, too, that concentration was really the key to success.

> Close attention to the work, success, improvement and a pleasurable feeling tone always went together. * * * It was the development of this habit that forced the learners to make new adaptations and short cuts in method and that enabled them to leave the old and less economical ways of writing behind as fast as they were sufficiently perfected to permit the development of new and better ways. * * * The development of this habit of wrapped attention or interest, and the acquisition of a generally favorable feeling tone is as important for learning as the development of any of the special "habits of manipulation."[2]

He does not, however, give any specific method of obtaining concentration other than to make the obviously true suggestion:

> The best way to prevent distraction is to become so intensely interested in something that no other stimuli can have any effect.[3]

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[1]Fuller, Donald C. Reading for Typewriting Journal of Business Education, September, October, November, 1943

[2]op. cit. Psychology of Skill p. 97

[3]op. cit. Learning to Typewrite p. 100

The Learning Situation Should Appeal to All Possible Senses

He anticipated modern practice in the respect of having the teaching appeal to as many of the senses as possible rather than to only one or two:

> When stimuli coming from different sense departments are thus combined and brought to bear on a learner, they may be made extremely advantageous in aiding certain steps in the learning process if only the law is understood and skillfully appealed to by the teacher or learner.[1]

Modern teachers have added audio-visual aids to the kinesthetic concept in their efforts to have the senses aid each other as much as possible in the learning process.

Use of Service Mechanisms

Book mentions also that the learner in typewriting should be taught to use the service mechanisms efficiently:

> A typist * * * should also master the mechanical features about the machine that will enable him to use it intelligently.[2]

He mentions specifically the importance of returning the carriage without undue delay and compares operators who do this correctly with those who make false motions in this respect.

> ....the latter method results in a decrease of some three per cent in total typewriting speed, not to mention the additional muscular strain that is put upon the arm.[3]

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[1] op. cit. Learning to Typewrite p. 47

[2] Ibid p. 181

[3] loc. cit.

and ends his remarks by giving the method adopted in the Remington training camp, "using two fingers on the carriage lever without actually grasping it."[1]

Value of Demonstrations and Pictures

Book makes mention, too, of the value of demonstrations and pictures, and of the importance of not only learning correct position at the machine but being enabled to maintain it without variation throughout the different practice periods.

> Much also depends on learning and maintaining the correct position at the machine, and on developing a correct position for the arms and hands. This can readily be taught by demonstrations and pictures. * * * Unless (correct form) is acquired and constantly followed in all early practice, correct habits of controlling the fingers and hands in actual writing cannot be formed, because the reach on the machine and the "feel" of the individual letter-making movements changes with each change in position at the machine.[2]

> Even a world champion is greatly disturbed if his chair is too low or too high, or if his machine does not remain in the same correct position on the table throughout his practice. Any variation here interferes with the control over the series of movements involved in correct serial writing.[3]

Proper Method of Striking the Keys

The necessity for prompt release of each key in order to avoid piling the keys receives attention in Learning to Typewrite in connection with the proper method of striking the keys.

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[1]Ibid p. 182

[2]Ibid p. 182

[3]Ibid p. 179

> Miss Owen, champion typist from 1913 to 1918, asserts that one of the secrets of speed as well as accuracy is to reduce all waste motions to a minimum. To this end, she formulated her rule of the four m's: Minimum movement of the shoulders, minimum in the elbow, minimum in the wrist, maximum in the fingers. This gives not only the most economical response in making the letters, but insures a prompt lifting of the finger from each key as soon as it is struck, and furnishes the best possible guide to the development of touch on the machine which gives the most efficient control over the sequence and correctness of the various letter-making movements.[1]

But then he says, with reference to the pupil's recognizing the need for developing the correct touch:

> It may even make him willing to undergo the special finger exercises that are often required to develop the ability to release each key promptly when struck.[2]

Finger exercises in our day, while not wholly thrown overboard, tend to be held in some disrepute. At any rate it is not considered worth while to spend much time on them. (See p.111)

The Bryan and Harter Studies and Their Relationship to Typewriting

Although Book refers to the Bryan and Harter studies in telegraphy, he does not agree with their explanation of why "plateaus" occur in the learning curve. (See pp. 25-26)

> We have been able not only to confirm the general observations of our predecessors, but also, as it seems to us, to show why certain stages in learning such things as typewriting were of a "critical" nature and tended of themselves to bring about arrest of progress with corresponding "plateaus" in the learning curve.[3]

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[1] Ibid p. 183

[2] Ibid p. 184

[3] op. cit. Psychology of Skill p. 118

> The length of a plateau is not so much a measure of the difficulty of making certain special associations automatic preparatory for use as elements in the higher-order habits (as Bryan and Harter say), as a measure of the time and labor required to conquer certain difficulties encountered in the practice when these special habits are being finally fixed * * * and to getting rid of the evil effects of the mistakes which the final perfection of the special associations naturally brings on. As soon as these are overcome and attention is again properly applied to the work all orders of habits begin again to develop.[1]

> .....the special habits involved in the mastery of typewriting (make progress) like a flock of sheep along a country road (i. e. they do not develop simultaneously but some run ahead of others).[2]

He claimed that progress in typewriting could only be made when the learner was "feeling good" and really working at the peak of his efficiency and that even then "all new adaptations or short cuts in method were unconsciously made * * while practicing under strain."[3] These new ways of short circuiting were then noticed by the learner and incorporated by him into his regular practice.

> Bryan and Harter, in their study of telegraphy found that years of daily practice in receiving telegraphic messages at ordinary rates would not bring a man to his maximum ability to receive. * * * Men whose receiving curve had been upon a level for years frequently rose to a far higher rate when forced to do so in order to secure or hold a position. Their conclusion: * * "It is intense effort that educates."[4]

They also mention that 65 per cent of those who begin the study of telegraphy quit when they reach the first plateau

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[1]Ibid p. 122

[2]Ibid p. 123

[3]Ibid p. 128

[4]Ibid p. 129

because they do not make the painful effort necessary to become experts.

> The present study has not only verified the conclusions of these investigators by showing that less effort was actually put into the work at all those stages of practice where little or no improvement was made, but has revealed the particular role which effort plays in learning to typewrite.[1]
>
> It is strenuous effort carefully applied to the details of the work when all conditions are favorable and when the learner is thoroughly warmed up and has the right psychosis for making new adaptations in method, that lifts the learner out of his habitual ruts onto the higher planes of work.[2]
>
> So close is the correlation between the kind and number of mistakes made and the fluctuations in attention and effort, that the mistakes, instead of the observations of the learners and pulse curves, might have been used to determine the fluctuations in attention and effort. * * * As stages approached where the learner put less energy into the work and directed his attention less carefully, the percentage of errors greatly increased.[3]

He says that these fluctuations in attention and effort are wholly beyond the learner's control, and being always followed by unpleasant feelings, tend not only to still further decrease the efficiency of the work but also to affect that done on subsequent days. Because of this, he says, there are actually times when it would be better not to practice.[4] Such causes as fatigue, food taken, temperature of the room, etc., the teacher or the learner may control to some extent,

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[1]Ibid p. 129

[2]Psychology of Skill p. 149

[3]Ibid p. 160-161

[4]Ibid p. 185

but the lagging of attention due to habit (that is, the newness of the learning has worn off) is more difficult to do anything about.

> The best thing the learner can do when these lapses in efficiency occur is to drop down to a plane of work low enough to enable him to work successfully. Then the habits already formed will be rightly exercised and strengthened and no education in error will result. The strong tendency to rush ahead at the bad periods, and on the off days to try to make up for the lowered efficiency, must be held in check. * * * The wrong tendencies and habits thus formed will sooner or later have their revenge.[1]

He reiterates these same sentiments many times over in Learning to Typewrite. The following quotation is only one of many that might be used here:

> It is quite normal for any slump in attention and effort to be followed by intense effort wrongly applied to the task as soon as it is noticed by the learner. * * * * The only remedy for such a situation and the only way to prevent such arrests in the learner's progress is by insistence upon absolute accuracy at all times and by providing artificial incentives to effort. * * * * A teacher should also seek at these "critical" stages to arouse in his learners a keen interest in improvement as such. This not only will make them willing to master the special difficulties encountered at these stages of practice, but will make them able to sustain their effort and attention more nearly at its normal pitch.[2]

Book prefers to speak of "critical stages" rather than plateaus, although he maintains that the "critical stage," improperly handled, may lead to a plateau, or semi-permanent lack of improvement, and that it is here that the teacher can be of most value to the learner.

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[1]Psychology of Skill p. 184-5

[2]Learning to Typewrite p. 221-222

> The "critical stages" present difficulties which the learner, who does not know the real cause of his difficulties, nor the best way to overcome them, has great trouble to meet successfully. * * * Left to himself he rarely solves the problems presented in the best way. * * * * * The learner, at the "critical stages," has special need of the guidance and help of a skilled teacher, one who knows the nature of the difficulties encountered, how they can be most successfully met, and who, therefore, can give the needed direction and incentives to effort. The learner not only needs wise direction, but must be provided with such incentives to effort, emotional helps, interest in the higher phases of the work, etc., as will atone for the lapse in spontaneous attention and effort naturally brought on by the gradual perfection of the special habits involved in the learning.[1]

In Learning to Typewrite he further re-emphasized the above at considerable length and quoted another psychologist to corroborate his views in the matter:

> Experiments have shown that the mere repetition of a response, even though it be repeated many times daily, is insufficient to bring about an improvement in the execution of the act, "A learner profits by continuous practice only in proportion as we * * * arouse in him the intention to improve."[2]

Success Is an Incentive to Further Success

An interesting point to be found in this reading is that Book, too, had deduced that nothing succeeds like success, even before progressive teachers in general had come to that conclusion.

> The pleasant feelings attending the success serve as a sort of magnet for spontaneous attention or interest. Further, as long as progress is rapid, spontaneous attention is easily supported by efficient voluntary effort.[3]

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[1]Psychology of Skill pp. 201-202

[2]Learning to Typewrite, p. 217, quoting E.Meumann, Psychology of Learning, pp. 360-364

[3]Psychology of Skill p. 198

> Any method used by a teacher should be judged by the tempers and moods which it engenders as well as by the actual results that are obtained. For, * * a learner's attitude towards his task is one of the most important factors which affects the rate and extent of the improvement which he will be able to make.[1]

> Success creates an atmosphere of confidence which helps to bring it about. * * The very habit of succeeding is therefore a necessary factor in producing success, and the unpardonable sin for teachers is to give their pupils too many things to do which they cannot do or that they cannot do well.[2]

However, teachers seem to have interpreted the above to mean that they should require a smaller number of perfect papers, not that they should ease up on the perfect copy requirement. The final blow against a small quantity of all-perfect work was struck by Business itself in its demands for production.

Individual Should Compete Against Himself

He sets forth the idea, too, that the individual should improve on his own past record rather than being pitted against his classmates although he favors the competition of class against class.

> Teachers should realize that success in learning as in every other field of human endeavor, is a relative matter and that a learner's success should be interpreted strictly in the light of his ability to improve. * * * * It is only when we * * learn to expect or demand results from learners which are commensurate with their ability that a right adjustment is made to this important phase of the learning process.[3]

The writers of modern texts in typewriting methods are

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[1]Learning to Typewrite p. 296

[2]Ibid p. 362

[3]Ibid p. 363

wholly in sympathy with this concept of measuring improvement.

The Warming-Up Process

Although Book does not speak of "warm-ups" as we know them today, he seems to sense their importance.

> .....both the relearning and the warming up must take place before it is profitable for learners to work with maximum effort or to practice for speed.[1]

> It was found that a good moment or two in the early part of a test gave the learner a favorable mental attitude or feeling tone which often persisted for the rest of the test. * * * This total effect is held over in a measure until the next day, giving to consciousness a characteristic "set" for the rest of that day.[2]

We must remember, of course, that when he speaks of a test it is in the same sense in which we usually think of daily practice for our classes since his learners had a "test" each day, the purpose of which was merely to determine progress. However, it is apparent from his accounts at various points in both books wherein he describes the way his learners worked that he had no conception of a "warm-up" in the same sense in which this term is used by modern teachers. Nor does it seem that he is to be credited with the initiation of this helpful practice among teachers, but that it should rather be laid at the door of the trainees developed by the typewriting companies as demonstrators and winners of contests--or else credited to those who trained them.

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[1]Ibid p. 286

[2]Psychology of Skill p. 208

Need for "Feeling Good"

Inasmuch as Book seems to dwell frequently on the necessity for feeling good about the work in order to effect improvement, it seems strange that typewriting instructors for many years apparently ignored this aspect of teaching completely and emphasized only the necessity for absolute and invariable accuracy, which notion also came from his writings, and to which he devotes an even greater number of paragraphs, but which in actual teaching and learning tended to have the opposite effect and in many cases built up feelings of frustration and failure.

> In the light of * * the effect which failure and unpleasant feelings have on learning, the danger to the learner of study or practice when interest has failed, or when he cannot succeed, is clearly evident.[1]

Emphasis on Accuracy

It is obvious, however, that he is concerned solely with the development of accuracy and that all other matters which influence the learning of typewriting pale into minor significance beside the necessity for achieving it. He seems to think speed will come automatically if the learner has enough interest in the matter or if the teacher is properly skilled in keeping interest alive. He may well be considered the originator of the sentiment, "Attain accuracy and speed will take care of itself" which became the motif around which all typewriting instruction entwined itself

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[1]Psychology of Skill p. 209

for many years. One of his many comments relative to this is:

> To perfect carefully the elemental associations it will, therefore, be found better practically, to practice most of the time for accuracy alone and only a small part of the time for speed, a custom generally followed by the best typewriting schools.[1]

What little he has to say about speed seems always to be paired with the need for accuracy. There are several such comments and they read much alike. Here is another:

> .....we may conclude that the teachers of typewriting and the directors of the world's typewriting contest are right when they insist upon accuracy first and speed afterward.[2]

He even goes so far as to state that an examination of the records of international typewriting contests in each class (professional, amateur, and novice) "reveals the fact that the persons who stood at the head of the list in speed, or number of words written, made fewer errors than did those who stood at the bottom of the list."[3] In fact, it is possible that with all the slow painful efforts being made in the classroom to make never an error, speed development might have come almost to a standstill if it had not been for the awards program of the typewriting companies. These awards were so varied, so numerous, and ran to such pinnacles of achievement (even typewriters being given away if certain conditions were met) and were so desirable in the eyes of

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[1]Psychology of Skill p. 245

[2]Learning to Typewrite p. 174

[3]Ibid p. 228

both pupils and teachers that everybody who had anything to do with typewriting was speed-conscious in spite of Book and his theories. (See p.114)

Book Believed Plateaus Could Be Avoided

Although the consensus of opinion, psychologically speaking, seems to have been that plateaus were an unavoidable necessity in learning situations like telegraphy and typewriting, Book believed that under optimum conditions they could be avoided or, if conditions were not of the best they could at least be materially shortened.

> We conclude, therefore, that plateaus are not a necessity, even in the most complex forms of learning, as is, we believe, generally assumed, and give in further support of this statement the fact that some of our learners did of themselves successfully overcome the difficulties encountered at some of the "critical stages" in learning to use the typewriter.[1]

He points out that this has been found true also of learners in some other fields, as learning to play the piano.

Importance of Motivation

Book also saw the need for careful and thoughtful motivation on the part of the teacher:

> In forced learning, such as is artificially undertaken in the laboratory or schools, the strongest natural incentives to endeavor, such as are afforded by the emergencies of life, are lacking, and not the least problem connected with educational work is to find incentives to effort which will call forth all the energy that may be brought to bear on the mastery of the subject studied. That such special incentives and stimuli

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[1]Psychology of Skill p. 219

must be found and used if learning is to go on to the best advantage seems certain.[1]

Consideration of Individual Differences

He also expresses a genesis of the idea of individual differences, which are one of the important facets of good teaching in our times, when he implies that the teacher should understand his pupils as persons, their mental and physical makeup, in order to do well by them, expressed briefly thus:

> It is not what the learner would like to do, but what his mental and physical condition at the time of study or practice will let him do, that is important for determining his progress.[2]

> Individual differences operate to bring about variations in the rate of improvement in learning to typewrite. They also affect the limits beyond which further improvement cannot be made.[3]

Learners Should Understand
What They Are Trying to Do

Book believed that the learners should understand why they were given certain tasks and what specific things they could hope to accomplish by applying themselves to these tasks.

> ....it would greatly aid the learners if they were shown at the time what was really accomplished by such technical drills. For it has been scientifically shown that learners work more energetically and successfully at their tasks if they know what is being accomplished and if they believe that it is to their advantage to do it.[4]

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[1]Psychology of Skill pp. 246-247

[2]Ibid pp. 247-248

[3]Learning to Typewrite p. 290

[4]Ibid p. 185

Book's Views on Automatization Different from Those Now Held

On the other hand, he did not believe that one could type common words like the at the word level in the beginning;[1] nor did he believe that one could automatize a phrase in the early stages of learning to typewrite.[2] He was convinced that every word must be written on the letter level first and then gradually on the higher levels at a later date. He believed that typewriting skill could not be mastered quickly and that better results were achieved by proceeding slowly and carefully.

> One of the most significant facts determined about the mechanization of typewriting habits is the slowness with which they are finally fixed.[3]

But we have concluded that it was the wrong habits in which pupils became set that made the learning so slow. The changes in method which we have made in recent years have accelerated the learning and raised the standards of what may be expected from the average pupil in the same time or even less.

Economic Periods of Work and Rest

Book was aware of the fact that further study was needed for determining the best length of a practice period and the best amount of time between practices.

> Many experiments on learning have shown that the same amount of practice gives more favorable results

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[1]Ibid p. 190

[2]Ibid p. 191

[3]Ibid p. 219

> if properly spaced than if lumped together without proper intervals of rest between the practices.[1]

Fatigue enters into the problem if practice periods are too long, and forgetting is a handicap if they are too far apart ("deterioration through disuse of the connections in the nervous system," he calls it). He indicates that further study is needed to determine the exact proportion of practice and rest that will yield the best results for each learner. It was just after the publication of his second book that schools began to do away with the double period of typewriting (and bookkeeping); and schools which had not been able to manage more than a single period rejoiced to learn from the comments in the periodical literature of that time that the single period had been proved, by actual experiment with control classes, to be really the more efficient arrangement for learning.

Classification of Errors

In Learning to Typewrite he gives a classification of errors in which he divides errors into four groups.[2] He also analyzes the errors made by the champions. He believed that it was possible for the teacher to ascertain from a study of the papers why pupils made errors and thus to overcome them by applying "a remedy that will prevent or correct them at once."[3] Unfortunately, teachers, although compelled

[1]Learning to Typewrite p. 293

[2]Ibid p. 242-243

[3]Ibid p. 246

in some school systems to record every letter wrongly struck, found that the elimination of the difficulty was not that easy. After spending hours of unfruitful labor over a period of several years, business educators finally decided that the improvement resulting from the use of this system was so negligible as not to warrant the time and labor involved. One reason why this method was not more successful was, of course, that unless the teacher is watching the pupil when he makes the error, the teacher may not know the cause. What seems to be the cause as shown by the error on the paper may not be the true cause at all. Studies into the causes of error are still being made, but it seems likely that we may make more progress now that we realize that the isolation of the cause thereof is not a simple and easily ascertained thing.

One frequent cause of error, however, looking away from the copy, may be quite easily disposed of. Book states that pupils should be "required from the start to keep their eyes sharply and continuously focused on the copy,"[1] which is still approved practice and is not likely to be changed since it is the only way to avoid omissions or substitutions in the matter being copied, which is important on the job.

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[1]Learning to Typewrite p. 193

Metronomic Rhythm Considered a Basis for Both Speed and Accuracy

Book had implicit faith in metronomic rhythm as a panacea for most ills in learning to typewrite. Over and over again he repeats the benefits to be derived from the use of rhythm until it seems like a sort of refrain woven through Learning to Typewrite. This book is also splendid advertising for the Rational Rhythm Records--he mentions them by name several times and strongly recommends their use in the classroom.

> Striking the keys in uniform time and with a certain evenness of touch greatly facilitates a learner's control over the sequence and correctness of all letter-making movements to be made. * * * * This phase in the learning process is greatly facilitated by the use of rhythm records where students learn to make the letter-making movements evenly as to time by keeping time to music.[1]

He also believed that pupils should be given considerable practice on difficult or unusual words for the sake of not having them interfere with the maintaining of rhythm when they occurred in actual copy. As automatization came to be accepted as feasible by typewriting teachers and its value was proved by the results in the classroom, the slavish devotion to rhythm as a cure-all became obsolete, although it still has its proponents in some places. The statement has been made in recent years that we need to clarify what

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[1]Ibid p. 183

we mean by the term rhythm, that we do need rhythm of a sort, but not metronomic rhythm whichhas proved to be a barrier to the development of speed.[1] (See p. 181)

Present Obsolescence of Book

The theories of Book, while widely accepted and acted upon for about two decades, are now definitely passé. There is still much of good (as stated at the beginning of this chapter) to be found in his works but nothing that cannot be better assimilated from the reading of current writers, especially in current periodical literature on the subject of the teaching of typewriting.

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[1]Blackstone, E. G., and Smith, S. L. Improvement of Instruction in Typewriting Prentice-Hall, 1946 p. 185

Chapter V -- The Age of Confusion from the 20's to World War II

Change in the Situation with Reference to the Supply of Teachers

Almost overnight, instead of a scarcity of teachers for business subjects, there was suddenly such a plenitude of them that those who would enter the profession and had attended teachers' colleges or other institutions of higher learning with this purpose in mind had difficulty in obtaining a teaching position. Business still had a place for those who were capable of satisfying its demands and, because of this situation, many of these would-be teachers drifted into business occupations and never taught at all. For example, of the class of 1924, business department graduates, of the Salem Teachers' College (Salem, Massachusetts) only about 30 per cent were successful in obtaining a teaching position by the time school opened in September; less than 50 per cent of them ever taught at all. Business absorbed the others. School systems did not, however, require that those teachers already established therein increase their knowledge of educational matters or teaching techniques. Those teachers who had nothing more than a business college training and who had never taken an additional course of any sort continued to hold their jobs uncriticized and with no pressure being brought to bear on them to improve themselves

in any way.

More Opportunities for Teacher-Training in Business Subjects

By this time, however, business education had pushed its way into the curriculum of quite a number of institutions of higher learning because of the demands for teachers during and immediately following World War I. An effort was made as teaching positions grew scarce for beginners in this field to put business teachers more nearly on a par with teachers in other fields, not only to give them a more extensive general background, but also to give more concrete evidence that they had this preparation. With this in mind, many teacher-training colleges began to grant degrees, such as Bachelor of Commercial Science and Bachelor of Science in Education, in the mid-twenties.

Work Experience Made Part of the Curriculum in Some Institutions

In the early part of this period some of those who supervised the training of business teachers began to require a certain amount of business experience with a definite time allowed for it in the curriculum. The Salem Teachers' College, under the direction of Mr. Sproul, established and maintained this practice for a number of years until the difficulty of obtaining an office job during the "Depression" and public sentiment against anyone's seeking a job who was not actually in need of it caused them to discontinue it.

The idea of business experience as a prerequisite for business teaching is again coming to the fore in current periodical literature. Certainly the classroom teacher is more valuable if he knows from first-hand experience what actually goes on in an office. Many would change their emphases forthwith if they had this knowledge.

Furthermore, the teacher's confidence in his own ability to do what he proposes to teach is often the source of inspiration for the performance of his pupils as suggested by Arthur Skeeles in a short but entertaining and pertinent magazine article.[1]

Much Variation in Teaching Methods at This Time
Extremes Often Existed Side by Side

All kinds and varieties of teaching methods existed during this period, from those which the up-to-date teacher would consider archaic to those which were still in the experimental stage. Sometimes extremes in teaching methods existed almost side by side in the same or neighboring communities.

Typewriting in Junior High Schools

During the twenties typewriting was often taught in the junior high schools in cities.

> In the latter part of the Secondary School Period, there was some tendency to bring commercial work down into the junior high school. The argument for this was that a very large number of pupils dropped out of school

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[1]Skeeles, Arthur Let's Do Something About It Business Education World October, 1943 p. 111

before entering high school.[1]

There was, about this time, a tendency for the junior high to ape the high school in many respects which impaired the effectiveness of the pupil's education. The business department was not the only offender here since "try-out" courses in college subjects, such as mathematics and languages were also offered. Most of these seem to have been, practically speaking, merely a way of wasting time since the pupil who had taken any of these courses in junior high, if he continued the subject in high school, was put in a class with other pupils who had not been previously exposed to the subject. Such dabbling led, more often than not, to the neglect of thorough grounding in the fundamentals and a skimpy background of general information.

> There being no commercial subjects adapted to the junior high school, the tendency was to move the regular commercial subjects, especially bookkeeping, shorthand, and typewriting, down into the junior high school. It was not uncommon to find a differentiation of curricula in the junior high school, one curriculum generally being designated as the "commercial course."[2]

Not only was there no subject particularly adapted to the junior high, with the possible exception of "Junior Business Training" which was just coming into being, but there was no course particularly adapted to the junior high in the business subjects offered. In the Teacher's Manual

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[1]Knepper, Edwin G. History of Business Education in the United States Bowling Green State University, Bowling Green, Ohio, 1941 p. 117

[2]loc. cit.

for the New Rational Typewriting, SoRelle suggested:

> The course in operating technique, with suggested methods, already outlined for the senior high school, may be followed quite closely. There can be no practical difference in the method of approach in learning to use the typewriter in the most economical way. * * The main difference comes in the content of the material, which in the junior high school naturally must be adapted to the pre-vocational aim.
>
> Such subjects as the mechanism of the typewriter, operating technique, correct beginning, posture, machine operation, learning the keyboard, method of tapping the keys, individual finger reaches, use of charts, methods of practice, types of drill, habits, development of accuracy, development of speed, development of typing power, already treated in the syllabus for senior high schools are fundamentally the same.
>
> ....the content for the junior high school course is essentially different. This arises mainly from the fact * * * that the aims of the two courses are different. * * * * The content of the first year * * should be such as to fit the pupil to use the machine for practical writing purposes in his everyday and school life.[1]

The rest of his remarks read very much like a course in personal use typewriting, which, of course, is what was intended, although it is doubtful if it is especially advantageous to place such a course in the junior high school rather than later.

Typewriting in junior high schools cannot be considered to have been any great success. The situation was often a headache to the teacher since the result was to make classes more heterogeneous than if typewriting had been taught only in high school. Ideally, those who took it in junior high

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[1]SoRelle, Rupert P. Teacher's Manual of the New Rational Typewriting, 1927 Edition, Gregg Publishing Co. pp. 74-75

school should have been kept a separate group from those who began typewriting in the high school. SoRelle also makes this point.[1] But in actual practice, as was pointed out on p. 96, the pupils who had taken typewriting in junior high school were often placed again in a class with beginners. Under such conditions, advanced classes would be composed of pupils who had taken typewriting for various lengths of time; and the statement has been made by teachers of such classes that it often seemed as though the pupils who had been exposed to it for the longest time were the least capable.

After a decade or two, depending upon the locality, most of the vocational business subjects were eliminated from the curriculum of the junior high school because it was not only difficult to get good results at that level but

> This unwise tendency was halted when studies were made which showed that pupils of junior high school age were not employed in positions where the technical subjects would be serviceable to them.[2]

Typewriting has been the last of these subjects to be removed from the junior high. There are still a few educators who argue in favor of leaving it there for its personal use values as an educational tool in the high school.

Conflicting Psychological Theories

The period between the wars was not only an age of confusion because of the struggle of the new to supplant the

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[1] SoRelle op. cit. pp. 76-77

[2] Knepper op. cit. p. 117

old, but also because of the many psychological theories advanced at this time.

> During this decade (1920-30) we witnessed an epidemic of notions, based on psychological and pedagogical theories, that threatened or questioned nearly all teaching practices and procedures. Born of the theories of amateur psychologists, a rash of ideas broke out which, in the hands of the inexperienced teacher and administrator, disparaged much of what had been learned so laboriously over so many years.
>
> Learning by the "whole" method, variously interpreted, must always be preferred to learning by the "part" method. (In what diverse ways this principle was interpreted!) Students were never to be permitted to become discouraged; everything they did must lead to "satisfactions."[1]

Another author comments thus on the Whole versus the Part Method, and puts the emphasis on the teacher, not the method:

> There have been many advocates of the "whole," or the "part" method in teaching beginners typewriting, but research studies have not yet shown conclusively the superiority of either method. The most important thing is probably the proper use of either method in the hands of the teacher. The teacher must know what he is going to stress and look for, and whether he uses the whole or part method, if he understands the technique and has enthusiasm and the courage of his beliefs, he will succeed.[2]

Even when studies were made to determine which method was better, the results either were not conclusive or one study seemed to contradict another:

> The part method or the whole method? In the Hainfeld study the conclusion is reached that the group learning by the whole method is superior to the group learning to type by the part method. * * * The conclu-

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[1]Smith op. cit. Business Education World, Feb., 1947 p.322

[2]Weaver Luther M., Jr., and White, James D., Techniques to Be Stressed in Beginning Typewriting, Typewriting News, South-Western Publishing Company, Spring, 1935, p.2, col.4

> sion reached in the study by Miss Elizabeth A. Fleming: "It would appear from these data that the part method of teaching the keyboard of the typewriter had an advantage over the whole method."[1]

Thus it will be seen that it was difficult to draw any satisfactory conclusion.

The number of psychological theories regarding learning increased and many names, such as Gestalt, organismic, atimistic, and eclectic, were heard in classes for teachers and in other places where teachers congregate to improve themselves. Each psychological theory had its adherents who were certain that here at last was the answer to all the teacher's problems.

Importance of Pupil Rather Than Subject

There was one thing, however, about which there was no uncertainty: The importance of subject matter gave ground before the growing recognition of the importance of the individual, and the pupil, not the subject taught, became the paramount consideration.

> The starting point in the teaching of typewriting is the student. His needs must determine the content of the course; his attitude will, to a large extent, determine his success or failure in the work. The teaching of typewriting, then, calls for a cooperative attack by teacher and student.[2]

> Teaching has two objectives--the student and the subject matter. We seek the end through certain changes in the thought and experience of the student.

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[1]Lessenberry, D. D. Comments in Eastern Commercial Teachers' Association Yearbook, 1931 p. 151

[2]Lessenberry, D. D. and Jevon, E. A. Manual for 20th Century Typewriting, Second Edition, South-Western Pub.Co. 1934 p.3

> We teach John typewriting; but we also teach John. The student is always the teacher's objective. The value of teaching is to be measured by the degree in which it finds expression in the life of the student.[1]

Another comment from a classroom teacher reads:

> Contrary to the old idea that "no difference what the task is just so the child doesn't like it," we are now incorporating into our program the kind of instruction and methods which will appeal to the interest of the individual and awaken in him a desire to accomplish and excel in his work.[2]

In the Business Education World we find further comments in an article by a teacher who emphasizes the importance of the teacher's knowing enough about the individual he is trying to teach to enable him to remedy causes of failure unless the cause happens to be some outside factor wholly beyond his control. Even then it is helpful to understand what the cause is. It is to be remembered, too, that pupils will often take suggestions from teachers with regard to remedying outside causes of difficulty in class, once they are convinced of the reasonableness of doing so and the benefit to themselves.

> What about Jane who habitually folds up when she is halfway through a ten-minute timed writing? Do you proceed to chastise the victim or do you attempt to discover the reason for such a loss of nerve control? Are you interested in the studies of the B-complex group of vitamins and what they might do to restore used-up energy of the nerve cells.[3]

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[1]Cooper, Edward L. The Teaching of Typewriting Typewriting News, South-Western Pub. Co. Spring, 1935, p. 1, col. 3

[2]Pratt, Lucille N. (Mrs.) Individual Differences in Typewriting Typewriting News, South-Western Pub.Co.,Spring,1932 p.5, col.1

[3]Masteller, Ralph Intangibles of Speed Development in Type-Writing Business Education World, November, 1943 p.139

Emphasis on Theory Resulted in Neglect of Practicality

Some teacher-training institutions emphasized educational theory to the neglect of the practical side of business knowledge (even going so far as to consider it unnecessary that the teacher be a skillful typist.) Teachers whose pedagogical theories were acquired in such institutions usually spent a considerable part of the class period lecturing to their pupils. Such teachers were sometimes faced with discipline problems since a roomful of high school pupils itching to use the typewriter does not take kindly to listening to a talk on typewriting instead of the action they crave. Even the average teacher usually started the class by first giving a talk on the advantages of typing by touch, which took considerable time the first day. Then there was an extensive list of all the parts of the machine to be dictated, which pupils were expected to take with them and memorize. Clem gives a list of 14 parts which should be taught in the first meeting of the class;[1] some teachers actually covered every part (name, description, purpose) and allowed no key to be struck until the learning of these parts of the machine had been completed. If this took up several class periods, they were not a whit disturbed thereat.

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[1]Clem, Jane E. The Technique of Teaching Typewriting Gregg Publishing Company, 1929 pp. 98-99

Clem says:

> No teacher should fail to let the students actually do some writing on the typewriter the first day. That is what they came for, and if the recitation is not so arranged that time will be available for at least a few lines, the student leaves disappointed. This disappointment will deaden his initial enthusiasm for typewriting.[1]

Modern teachers will unhesitatingly agree with the foregoing comment but upon reading Clem's Chapter VI and listing all the other things which she says must be done will wonder how everything is to be crowded in; and will surmise that the number of lines typed will be few indeed.

Introduction of Charts as a Device for Teaching the Keyboard

Teachers were gradually relinquishing the requirement that pupils memorize the keyboard. This, too, had had the effect of keeping the pupil's fingers off the typewriter for a day or two. The idea had been based on the advice of such former champions as Margaret B. Owen, whose counsel was:

> Do not touch a key until you have committed to memory the exact location of every letter and character on the keyboard and can, without an instant's hesitation or thought, find any key desired.[2]

Since keyboard wall charts were now (early 1920's) easily available from the typewriter companies at no cost to the school, and could be hung where all pupils might refer to them as they typed, there was no longer any excuse for such

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[1]Clem, Jane E. op. cit. p. 107

[2]Owen, Margaret B. The Secret of Typewriting Speed Forbes & Co., 1919 p. 36

memorization. About 1925 the companies, led by Woodstock, started to print these charts in colors to indicate the fingering. A heavy red line was drawn to show the line of demarkation between the hands and each finger was assigned a different color. Alert teachers found from experience, however, that such charts should be used with care since pupils, if allowed to depend on them too long, became confused and reverted to sight methods when obliged to type without the chart. About this time, and doubtless in an attempt to overcome this trouble, textbook companies began to print a chart in the text showing the keys to be used in the lesson, changing the chart on subsequent pages to fit the different lessons and discontinuing such charts after the keyboard had been covered. The following quotation from Rupert P. SoRelle, author of several typewriting textbooks will show how these charts were intended to be used:

> The x-ray keyboard charts are intended to give the pupil an accurate picture of the keyboard, with the hands in position. They serve a double purpose: first, to show the location of the lettered keys and the different finger divisions; and second, to remind the pupil constantly of the position his hands should occupy in the base position.
>
> It will be noted that the pupil will have the use of these charts for only the first part of the lesson--one or two assignments. At this time it is expected that he will learn the location of the keys for that particular section. The remaining assignments will be worked out without the use of the charts. The object of this arrangement is to prevent the use of the charts continuously. The charts

should not be relied upon for guidance any longer than is absolutely necessary.[1]

Several pages later he says:

> As far as possible the work in memorizing the keyboard should be from the keyboard itself rather than from charts or other devices.[2]

For a long time it had been considered necessary to take considerable time in learning the keyboard. Keys were presented a few at a time, in ways that have since been found to lead to homologous errors, and much drill was given on each "set" of letters before proceeding to the next. It is a matter of record that it took some classes, by the methods then used, from the opening of school until about Thanksgiving to cover the keyboard. In the mid-twenties, a speeding up of the learning of the keyboard began to appear in schools and textbooks. Various methods were promulgated and much discussion was heard of the merits of the "whole" approach as compared with the virtues of either the "part" or the "part-whole" approaches. Textbooks were put out by the various publishing companies in wide variety, so that no teacher need be without a text which followed the approach of his choice.

Recognition of the Fact That Watching the Paper Should Be Emphatically Discouraged

Teachers had been indifferent as to whether the pupil looked at his paper or not so long as he did not watch his

[1]SoRelle, Rupert P. Teacher's Manual of the New Rational Typewriting, 1927 Edition Gregg Publishing Co. p. 6

[2]Ibid p. 13

fingers. Now they came to understand that anything which interfered with keeping the eyes constantly on the copy was bad. A few teachers devised a sort of "shield" to keep the pupil's eyes from the paper. One kind was a folder attached to the carriage in such a way that it did not interfere with the striking of the keys. These were not used extensively, however, nor long continued in use. It was found effective to call the pupil's attention to the fact that work containing omissions or inaccuracies caused by not following the copy closely could not be used in real life situations; nor could one turn out work rapidly if he was constantly losing his place in the copy.

Use of Shields Gradually Discontinued

The use of shields began to be gradually discontinued by many teachers during the twenties. Some substituted blank keyboards and some depended on the teacher's ability to "sell" touch typewriting or her alertness in watching pupils and her ability to dominate their ways of working to insure learning by the touch method. Many schools, however, did not actually teach true touch typing which claimed to do so. Some did not claim to do so on the figure row and there were teachers who thought this was immaterial since they believed that figures were not much used. This is doubtless one reason why statistical typists came to command so much higher wages than other typists.

Superiority of the Perfect Copy Standard Began to Be Questioned

The perfect copy standard began to crack its unanimity and the practice crept in, in the mid-twenties, of allowing one or two errors per paper. This was later increased to three and papers were graded with 10 per cent being taken off for each error. Under the perfect copy standard grading for report cards was so simple that the result could be arrived at almost instantaneously. The teacher merely looked at his record, saw what page of the book the pupil was working on when marks closed the previous term, where he was now, and in a minute he could tell the grade. Under the system of allowing errors, however, two factors, quantity of work and quality must both be considered. The fact that this made more work for the teacher may have had something to do with the preference of certain older teachers for the perfect copy system and their reluctance to see it go.

Arguments in Favor of Abandoning the Perfect Copy Standard

Logic was on the side of the abandonment of the perfect copy, but teachers apparently felt a little guilty or else there were many "die-hards" in the profession[1] who needed to be convinced that the "perfect copy way" was not the best

[1]Even as late as last year in a class at Boston University, the statement was made by a part-time graduate student that in his school the perfect copy system was still being used.

way. At any rate, much was written and much was said at conventions and in unpublished lectures in defense of allowing some errors.

> The eraser business is a big business--because people make mistakes. Mistakes should be penalized, but not at the expense of progress.[1]

> Many teachers make an obsession of the "perfect copy." In the beginning lessons it is not pedagogically sound. If the pupil does produce a correct copy on one piece of matter after repeated efforts, what assurance have we that he will be successful with another piece of matter?[2]

> You cannot expect that errors will not be made, unless the writer is gifted with a perfect nervous system. Even the expert pianists and violinists, who perhaps have practiced the "pieces" they play thousands of times, make mistakes occasionally.[3]

In this connection it is also interesting to note that for many years teachers thought there was so much relationship between learning to play the piano and learning to typewrite that some teachers even went so far as to believe that the prospective typist should learn to play the piano first. The experience of years, however, has shown that such a belief has little, if any, foundation in fact.

Teachers Who TEACH Observe Many Hitherto Unnoticed Things

Under the glass-wall method of teaching typewriting the teacher had often not really known how the pupil produced

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[1]SoRelle op. cit. p. 9

[2]op. cit. p. 8

[3]Ibid p. 9

his perfect copies since the pupil was allowed to work by himself while the teacher was much too busy with other things to watch him. But as teachers actually began to teach their typewriting pupils and as they began to observe the pupil at work, they began to notice many things that had escaped attention before. For instance, they saw some pupils turning out perfect copies in the required amount but not by touch operation. They even saw some who used incorrect fingering; and some whose touch was extremely poor. They saw others who failed to use the service mechanisms or used them inefficiently, such as using the space bar in place of the more efficient tabulator mechanism; using the carriage release instead of the line space lever; following the carriage all the way across the line instead of getting the hands back to the keyboard quickly; and there was even one pupil who returned his carriage by the use of the righthand platen knob. Thereupon they decided, if free to make their own decisions in the matter, that whether all the papers were corrected or not their time as teachers was being much more productively spent in preventing pupils from falling into the ways of error than in finding errors already made. SoRelle says:

> In the early stages of typewriting the teacher should be more concerned with the accuracy of the method than with the accuracy of the copy. Logically, it might seem that if the method were correct, the product would be correct; but this would be disregarding the human element. Proper technique should be stressed from the beginning, and until this has been acquired and the student is able to execute the move-

> ments with a reasonable degree of accuracy, the correction of the papers is an unimportant detail. * * * If the ideal is a "perfect" copy, the student may produce it at the expense of technique, and he thus fails in his objective. * * * Correct technique will eventually produce better and more accurate results than can be secured in any other way, but the result as revealed in the student's copy may indicate the reverse.[1]

Importance of the Human Element in the Supervision of Pupils

Some teachers, however, careless of the human element, made pupils nervous by letting them know when they were being watched. It is a rare person, at any age level, who can take this with perfect equanimity. In extreme cases, one might even feel that the "glass wall" is to be preferred to the teacher who makes the learner feel as if he were temporarily paralyzed. The only salvation in such cases is that in classroom teaching such a teacher must spend some time watching the other pupils. Clem says:

> Supervision should produce a minimum of interference with the student's work. The teacher should be conscious of what the student is doing, yet the student should never be made to feel that he is constantly watched. * * * The teacher should never stand by a machine and watch a student work, for he really will do very little while the teacher is there. Better, watch him at work from the next aisle over from the machine, or while passing by him.[2]

It is equally true that the teacher cannot learn much about the pupil's performance if he has such an effect on the pupil that nothing worth seeing actually occurs while he is watching.

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[1]SoRelle op. cit. p. 7

[2]Clem op. cit. p. 74

Demonstration Begins to Be Used

Some teachers about this time began to use demonstration for the early lessons in teaching beginning typewriting. The present-day type of demonstration stands were unknown but these teachers managed by putting a typewriter on the teacher's desk and typing for or with the pupils to show what should be done and how it should be done. (Of course pupils could not see as well as with the modern type of stand.) Other teachers sat at the pupil's machine at some time during the period and typed with the same objective in mind. Certain techniques which are important in real life but which had been ignored in teaching now came to receive proper attention in the classroom. One such technique is the reinsertion of paper which has been removed from the typewriter. This is best taught by demonstration. What is thus learned is also applicable to the filling in of form letters, of which some business houses make extensive use.

Finger Gymnastics

Opinion has varied as to the advisability of using finger gymnastics in the development of typing skill. They were very popular for a time, then their use died out. Clem apparently was very much in favor of them, for she includes in her text two and one-half pages of fine print containing twenty-two suggested exercises which she considers "the

most helpful."[1] There are still some authorities who believe them beneficial enough to be used,[2/3] but the attitude at the present moment among teachers and teachers of teachers seems to be that anyone should be allowed to take them or leave them as his own inclinations dictate. (See p. 77)

The Use of Music

Crum gives as one important reason for typing to music:

> It aims to increase the students' musical appreciation of good composers. * * * * * It is astonishing to learn from time to time that in many commercial schools and departments typing is not taught to music --that there are teachers, even in this progressive age, who, even yet, seem to think of typing as strictly a vocational subject and nothing else. For these, a visit to a typing room equipped with more important things in mind, would prove interesting and profitable.[4]

Modern teachers, however, believe that in the typewriting class, nothing is more important than the development of the mastery of the typewriter and if the student's morals and appreciation of good literature and good music are benefitted, all well and good, but the aim of the course is not primarily to take them in. A knowledge of fundamentals of English usage may, however, be justified in its inclusion in the aims of both the teacher and the textbook writer since

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[1]Clem op. cit. p. 135-137

[2]Tidwell op. cit. p. 261

[3]Dvorak et al. Typewriting Behavior American Book Company 1936 p. 93 and 404

[4]Crum, Annabel Typing to Music The American Shorthand Teacher, June, 1930 p. 378

vocational typewriting (and even personal typewriting) is based upon a certain amount of ability here.

Clem, who is much is favor of metronomic rhythm and music as an aid in getting it says:

> It is said that where there is music there is order and proportion. This statement explains, in brief, why music is used in learning typewriting.[1]

She believes that it aids the pupil to write more accurately:

> Students may be allowed to sing or whistle the air if they choose. * * It also is an excellent test of concentration, and motorization of the words being written. As a result, more accurate work will be done. * * * * * ....an average students outwrites himself. He is so anxious to get ahead that he forgets about accuracy and sacrifices everything to speed. Here music comes in as a great aid. If the student attempts to write at too fast a rate, the tempo of the record acts as a continuous check on the increased rate.[2]

She believes it can be used to induce the pupil to strike the keys faster also.

> The laggards know they must keep up with the music, and as a result they put twice the amount of effort into their work and develop into good typists, oftentimes in spite of themselves. Music eliminates the tendency of the loiterer to waste time between strokes, and he will accomplish just as much as the brightest student perhaps.[3]

Modern experiments in the use of music show that this theory of using music to speed up slow responses is tenable if the right kind of music is used. The schottische and polka are best for this purpose in typewriting.

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[1]Clem <u>op. cit</u>. p. 121-2

[2]Ibid p. 123

[3]<u>loc. cit</u>.

There are arguments against the use of music, however, some of which actually preclude its use in certain situations.

> Too many teachers try to let the phonograph teach typing for them. It can never do that. Because it makes a teacher lazy, some supervisors forbid the use of the phonograph.[1]

Unless one has the use of one of the newer types of phonographs, someone must "tend" it. If this is done by the teacher, it takes time she should be giving to the class; if it is done by a pupil, unless it is one who is not a class member, when is he to type? Even to have pupils take turns at this is not an entirely satisfactory solution, although it may be the best that can be devised under the circumstances.

Also, unless walls of rooms are sound-proofed, teachers in neighboring rooms may complain. The typewriting teacher would not wish to be inconsiderate of her colleagues in the profession in any of its departments.

School Services of the Typewriter Companies

Teachers in the twenties found the awards programs maintained free of charge by the typewriter companies a powerful motivating device. (See p. 86) The certificate and pin-medal awards began low enough to provide for the mediocre typist and ran high enough to appeal to the really skillful. Pupils were interested to the point where they were often willing to put in many extra hours after school on typewriting if the teacher was willing. Certificates

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[1] loc. cit.

were given for as few as 20 words per minute (although some companies began at 30) and there were pearl and diamond pins for rates well over 100. The rules varied somewhat from company to company in regard to rates required, errors allowed, and conditions under which the test must be taken. If the award was high, the company might require that its representative be present at the time the test was given. Even typewriters were awarded if the typist met certain conditions. (See Appendix A)

In order to standardize contest results and give a basis for comparison of records, the standard word count (5 strokes equals one word) was adopted in 1924. This change was welcomed in the schools because companies had been making the testee take the test which was to count on the higher awards on much more difficult material than the ordinary monthly material.

> This change called for the stroke counting of all contest matter. * * * This lowered the records still more but was a definite gain in the long run.[1]

Excellent typists in the schools, however, continued to raise their speed records each year and there was no falling off in the winning of awards, but an increase rather. Examination of the Remington material for the month of September, 1927, shows that on the back of the leaflet is printed the names of 24 persons who won portables in the period April 15-

[1]Smith op. cit. BEW Feb., 1947 p. 321

May 15, 1927. The Remington material for the month of March, 1928 lists 13 who won portables in the period November 15-December 15, 1927. (See Appendix A)

The Royal people used their awards material to set forth pointers for pupils about the development of character, the abilities that businessmen looked for in their employees, etc., and facts about their awards program:

> Students are greatly interested in trying to win Royal Portables as special accuracy prizes. All perfect papers with rates of fifty or more words per minute which are received before January first will be included in the contest. The student in each state who attains the highest perfect record during the first period consisting of four months will be awarded a Royal Portable.[1]
>
> Doubtless you will be interested to know about the record made last May by Miss Eleanor Young, a student of the Rockland High School, Rickland, Maine. * * * She attained a rate of one hundred and eight words per minute for fifteen minutes without an error. In one month, she won our gold medal and a standard as well as our portable typewriter.[2]

Awards changed with the fashions, too, because, of course, no student would try as hard for an unattractive award as he would for one which pleased his fancy. The companies were smart enough to supplant the medals which looked like something one might receive at the County Fair for superior cattle or farm produce with pins which were really wearable. The Royal people call attention to the fact that

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[1]Monthly awards leaflet issued to schools by the Royal Typewriter Company for the month of December, 1928, p. 1 This was the material the pupil was to write for awards.

[2]Ibid p. 3

they are keeping up with the times:

> Formerly only a few of the winners of our Gold Medal wore it owing to its size. In the majority of instances, it was kept in some safe place at home and only exhibited when the winner was visited by friends, uncles, aunts, or cousins. * * The medal has now been reduced in size and is more like a fraternity pin. * * * When you have won our Gold Medal, you have to make a gain of only ten words a minute in order to win a Royal Standard Typewriter.[1]

Complaints had begun to be heard from businessmen that typists did very well on straight copy but that they often did not seem able to cope with the problems involved in the production of practical typing as demanded by the office situation. The L C Smith Company took some notice of this observation by including "tabulation tests" on the back page of the straight copy leaflet. This hardly met the situation, however, since no time was given as standard for typing the tabulation and no thinking was demanded of the pupil because the tabulation was not only set up but he was told exactly where to set the stops for each column. These leaflets (one each month) also included remedial drills on the keyboard by Lessenberry.

In 1931, the typewriter companies, themselves feeling the effects of the "Depression," discontinued the free awards program. It has also been rumored that too many pupils were winning too many awards; naturally the manufacturers did not

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[1]Ibid p. 2

want to be forced into bankruptcy by pupil improvement.

> Some schools turned out in one and two years of school practice many typists who typed in the 80 and 90 net word range, equaling and surpassing the performance of the company experts of but a few years before.[1]

The companies also dissolved their free employment bureaus at this time, but they continued to give demonstrations and also published from time to time booklets giving pointers on the use of the typewriter[2] and others giving advice on office procedure and etiquette[3] which were sent free, not only to teachers but to anyone who would write in and ask for a copy. The Royal Typewriter Company had an arrangement whereby they sent out a demonstrator (not a speed champion) to show how time could be saved by the use of such devices and short cuts as chain feeding, pocket feeding, and many more.

The Educational Research Bureau

The Educational Research Bureau was intended to take over the services abandoned by the typewriter companies "but this Bureau was staffed by persons without previous experience in the operation of these plans and without intimate contact with those who had developed a high degree of typing skill."[4] The tests which they sent out each month were an

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[1]Smith op. cit. BEW Feb., 1947 p. 321

[2]Tips to Typists from L C Smith; also published one by one in daily advertisements in the newspapers

[3]Patty Perfect is one example; no copy now available; distributor probably Underwood, although this is not certain.

[4]Smith op. cit. BEW Feb. 1947 p. 322

improvement over the old type in that they included tabulations, rough drafts, and letters as well as the old-type straight copy. But they fell down in two respects: there were no awards to work for and even the teacher did not know how well the pupils had done in comparison with others throughout the country until all the reports were in and norms had been set up. Pupils showed very little interest in them and teachers did not show much more.

State and Local Contests

State and local contests grew up in the mid-twenties to such an extent that they were quite prevalent in some sections of the country although not so much so in New England as in some states farther west. These were not only a powerful motivating force for pupils but even more so for teachers since sometimes the teacher's local reputation depended on how many places her pupils were able to win. Because of this some teachers chose early in the year the pupils they thought had a chance of winning in the contest and concentrated all their efforts on them to the neglect of the rest of the class. "Intensive training of a few individuals in order to bring a transitory glory to a school or town is unfair and dangerous."[1]

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[1]Wisconsin Journal of Education for September, 1926, quoted by Clem (op. cit.) p. 213

The National Clerical Ability Tests

Business all through the thirties had no trouble in making itself heard whenever it wished to voice a complaint. It was in a position to crack the whip and vocationally-minded teachers, whose schools were accustomed to placing graduates in positions, jumped whenever the whip cracked and paid intense attention to all suggestions. Sometimes, however, teachers got an inkling that the businessman does not always know what he wants; that he wants one thing today and something else tomorrow; so they began to talk back. The general result of this interchange of frequently caustic comments was the National Clerical Ability Tests, the easiest and fairest of which was the one in typewriting. These, too, were for a time, in some schools, a powerful motivating factor. A drawback was, however, that the privilege of taking this test must be paid for, which, except in such places as those where the school furnished the funds, automatically barred those who could not or would not pay.

The typewriting test in this group included all phases of practical typing as called for in the office situation and served its purpose very well at the time it was instituted. Businessmen devised employment tests of their own, of shorter duration, to give to applicants for typing jobs. These tests were discontinued during World War II. An attempt has been made to bring them back under the name of

Business Entrance Tests, but it has not been very successful, at least in this part of the country, perhaps because of the fact that jobs are not yet hard to get and pupils, therefore, feel little interest in obtaining a certificate, especially if they must pay to take the test on which its achievement depends.

Effects on Teaching Procedures of the Discontinuance of Typewriter Company Awards

Even though schools felt their loss as a strong motivating factor, the discontinuance of the typewriter company awards was in one way a good thing because it brought teachers to the point of cutting down on the time spent on straight copy and devoting more time to the teaching of actual job typing, such as tabulations, rough drafts, fill-in letters, forms, etc. Such job typing had, of course, been emphasized by the two testing programs which superseded the Company awards program. Teachers not only cut down on the number of timings given, but most schools also cut the time for such writing from 15 to 10 minutes. The present tendency is to make timings even shorter and to use many more five-minute than ten-minute timings. Also beginners are now started on very short timings--one-minute, two-minute, etc.--gradually working up to the longer periods.

Questioning of Error Penalty

The error penalty came up for much scrutiny at this time since the schools need no longer be dictated to by the typewriter companies. Some schools came to ignore errors entirely in establishing speed rates and based their ratings wholly on gross speed. This was a source of great confusion since gross speed and net speed are not comparable. In attempting to compare results from school to school, it became necessary to find out what basis was being used in each case. This way of doing also had a tendency to make some schools appear, to the uninitiated, to be doing much better than they actually were--which some people suspected was really what they were after all the time.

A practice also grew up of giving timed writings and having pupils erase every error as it was made. This reduced rates tremendously and was very unpopular with pupils. Nor was this system popular enough with teachers to become well-established nor widely used.

Since the practice of erasing each error was not well received, other suggestions were made regarding the penalty to be charged for each error. A 3-word penalty was suggested by Lessenberry and Jevon. They continue:

> The ten-word penalty is doomed. It has not been justified. * * Experiments are being made to determine the most scientific method of scoring timed writing. * * * These experiments have not yet been completed.[1]

[1]Lessenberry, D. D. and Jevon, E. A. Teacher's Manual for 20th Century Typewriting, Second Edition, South-Western Pub.Co. p.6

Apparently the experiments never were completed to the satisfaction of everybody, for this is one subject to which, as yet, no acceptable answer seems to have been found.

Still another suggestion--one not heard before--was made by Selby (see p. 181), who set forth a schedule for determining the number of words written per error and claimed this method to be fairer to all typists,both slow and fast, than any other method.[1] There does not seem to be any movement on foot to accept his suggestion, however.

Another recent change in typewriting methods is that, since it has been fully established by Smith[2] and others that gains in speed are developed on very short intensive efforts (i. e. one-minute or half-minute), teachers do not attempt to work for speed and accuracy at the same time, but independently and then put them together.

> Separating objectives--striving for speed alone on some efforts and for control of accuracy or fluency on others--has been proved to be essential if we are to prevent students from learning bad technique and developing into slow, inaccurate, or jerky typists.[3]

Teacher-Originated Motivating Devices

Teachers, through the years, have developed many motivating devices of their own. These were not so necessary in the early years when motivation was intrinsic, due to the

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[1]Selby, P. O. The Measurement of Accuracy in Typewriting Journal of Business Education, April, 1946 p. 23

[2]Smith, Harold H. Typing Teachers--Athletic Coaches Business Education World, November, 1939 p. 192

[3]Smith, Harold H. The Story of Teaching Methods in Typewriting, Business Education World, March, 1947 p. 404

pupil's eagerness to enter the business world. But as time went on and the number of would-be typists increased and jobs grew scarcer, the employment age was raised gradually, and pupils became less serious in their purpose. For these reasons, teachers were compelled to think up more extrinsic motivation devices, some of which seem to other teachers too extrinsic to be pertinent. Such schemes as a make-believe auto race across the continent or a "golf tournament" are a little far-fetched for the situation to which they are supposed to apply. Clem[1] and Blackstone[2] both apparently give their blessing to such "stunts" and go into quite some detail about them. The professional magazines, too, once or twice a year, for some fifteen years or so have been running accounts of motivation "parties," "races," etc. But many teachers consider it much better to motivate by means of facts and factors which have some direct connection with typewriting per se.

> The fact that the pupil is going to use typing to get and hold a job provides the first step in motivation. The fact that he can set up actual business letters, tabulations, and forms spurs him on. * * Why should the typewriting teacher feel the need of using artificial stimulation in a class where the natural motivation is always at hand? Why consume valuable time in pepping up a typing class with non-skill-building games when there are so many interest-

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[1]Clem op. cit. pp. 207-210

[2]Blackstone & Smith op. cit. pp. 320-325

> ing setups to be typed, so many helpful hints about the typewriter and its parts to be explained, and so many methods of building up typing speed to be practiced.
>
> I think our mistake has been to look too far afield for artificial means of motivation in typewriting when the natural interest is already there waiting for development by a teacher who is conscious that monotony is to be avoided by taking advantage of the natural interest of the pupil in the subject rather than by bringing in non-essential material.[1]

Another writer expresses much the same view:

> Good teaching, we have discovered, comes through motivating the student, not from without, but from within. We need to spend more time in studying the pupils and how they learn rather than on devices that entail unnecessary expenditure of time and energy.[2]

Some teachers have noticed that pupils, too, seem to get "fed up" with stunts very quickly and really prefer teaching which sticks to the point. Motivation by stunts has been more often found in classes which are not truly vocational than in those which have their mind set on getting ready for the business world as soon as possible.

Good motivation also requires that the learner shall know what he is doing and why he is doing it. A person is much more interested in what he is doing if he knows what his objective is and how near he is to attaining it. Good teachers have perhaps always known this, perhaps, but not all teachers have always applied it. There was a time when it was not much emphasized. Now teachers are again aware

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[1]Winchester, Edith M. Beware Artificial Motivation Devices Business Education World, September, 1937

[2]Preble, Harriett C. Against Motivation Devices Business Education World, May, 1941 p. 845

of its effectiveness.

Publicity pertaining to awards or other outstanding achievement has been used as a motivation device for many years. The Gregg Writer awards have been used in many schools for many years. Some schools have a school-instituted awards program whereby pins are bought by the school or certificates issued of the type which may be obtained free from certain publishing companies. Bulletin board displays, progress charts, etc., have also been in use for so long that it would be difficult to say who used them first. It seems that all these publicity devices are coming to be used more freely than ever because modern teachers intend to take advantage of every aid to learning that offers itself.

Good teachers learned long ago, however, that it pays to see to it that no pupil is embarrassed in any way by comparisons with other pupils and that every pupil should have some chance to shine occasionally. "Nothing succeeds like success" is especially applicable to motivation.

Use of Objective Tests

Objective tests came to be used by some teachers for typewriting about the same time they were used in other subjects (in the 1920's). Some teachers, however, have never used them or have used them infrequently on the grounds that there often is very little correlation between a student's score on an objective test and his ability to typewrite.

An author who is in favor of their use says:

> Aside from the value of this type of test as a review and as a teaching device, it serves another purpose. It gives the student who lacks coordination an opportunity to show that he knows the theory of typewriting.[1]

Occasional tests of this sort are printed in the periodical literature, which the teacher is given permission to use if he cares to make copies for his pupils. An example of how to write such a test is given in Typewriting News, Spring, 1935.[2]

The Length of the Typewriting Period is Questioned

In the twenties and early thirties, many schools had double periods for such subjects as typewriting and bookkeeping, but after a while some teachers and administrators began to question whether a shorter period might not be equally effective for these subjects. Some schools experimented to try to determine the most economic length of period. The Lafayette High School of St. Joseph, Missouri, was one, the conclusions of which were published. After comparing results from the use of a 57-minute period with those obtained in a 35-minute period, they concluded:

> that pupils will learn to operate a typewriter just as efficiently in a 35-minute period a day or perhaps a 30-minute period as in a longer one.[2]

Other schools took notice of this and other experiments

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[1]Heitman, Janet The Use of the New-Type Test in Teaching Typewriting Typewriting News, Spring, 1935 p. 4

[2]Coffman, Mary Lee and Murphy, D. H. Is More Than Thirty-five Minutes Necessary for the Typewriting Period? Balance Sheet February, 1931

which took place about the same time and as a result of the findings, the shorter period was adopted almost everywhere for the learning of typewriting.

Later the number of years given to the teaching of typewriting in the high school came to be questioned in much the same way and the conclusions were that to offer four years of it was robbing the pupil of time he might better spend learning something else and that skill in operating the machine could be developed in two years.

Analysis of Errors

The analysis of errors, which Book (see pp. 89-90) had seen the value of but which he had assumed to be so easy, was handled in the late twenties and early thirties in the manner suggested by him. That is, a list of all errors was made consisting of the letter incorrectly struck paired with the letter which should have been struck. For a number of years there were school systems which actually required that this colossal undertaking be attempted, and supposedly carried out, by the teacher. This stupendous task was supposed to point the way for remedial practice to be given the class. It is not known whether teachers rebelled at all this needless paper work. At any rate, it was eventually abated whether for this reason or because of the fortunate fact that educators in the field soon came to see that the correction of the error lies primarily with the pupil and must be approached

through enlisting his understanding and cooperation.

Lessenberry in 1931 said:

> The pupil must be made to understand the very great importance of his own individual study of errors. * * No corrective measures can be completely successful without this enthusiastic, intelligent, eager cooperation on the part of the pupil * * * * .....timed writing periods are of little value without this definite analysis of errors and the immediate practice of corrective drills.[1]

In 1935 Stuart said:

> There is only one way to correct a typing error. This is to attack its cause, not its outward manifestation. Error Studies and Error Charts have almost always been based upon wrong assumptions. * * * Finding the cause and applying the remedy becomes an individual matter.[2]

If teacher and pupil wait until the error is cold--for example, until an error chart is filled out at the end of the day by the teacher--it is entirely likely that neither one can assuredly tell the cause of that error. But if the paper is corrected while the writing is fresh in mind and remedial practice embarked upon right away, the error will be taken care of because its true cause is attacked. An analogy exists here between eliminating typewriting errors and getting the weeds out of the garden. Any gardener knows it does little good to cut off the tops of the weeds--you must eradicate the roots if you really want to get rid of them. So, too, teacher and pupil must eradicate the root of the

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[1]Lessenberry, D. D. Eastern Commercial Teachers' Association Yearbook, 1931 p. 151

[2]Stuart, Esta Ross Eastern Commercial Teachers' Association Yearbook, 1935 p. 146

error in order to have remedial work successful.

There are texts which suggest that the pupil rather than the teacher keep the error chart, and they show him how it is to be done, for example, Typewriting for Immediate Use.[1] This is better than having it kept by the teacher since it is that much nearer the source of the error, but teachers must beware of the dangers of spending too much time on "paper work" for either teacher or pupil. To initiate immediate practice to eliminate an error is infinitely more valuable than any amount of record-keeping about past errors.

A little later, studies came to be made into reading difficulties as a source of error. The most outstanding was that made by Fuller, who says:

> The typist should not attempt to read too far ahead in the copy. For efficient typewriting, the law of contiguity requires the signals as close to the reaction as possible. A certain interval is necessary to give a proper cue (probably one second) but beyond this time interval, looking ahead in the copy is likely to cause errors. Reading ahead of the point where copy needs to be supplied to the hand may lead to anticipatory responses which will result in the interchange of later items in the present series.[2]

His conclusions from this study are:

> The writer's interpretation of his findings conflicts with William Book's theory expressed in the Psychology of Skill, that units of reading are set by the degree of mastery (letter, syllable, expert). * * Also the writer's findings are in conflict with Dvorak's

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[1]McNamara, Kean, Markett--Typewriting for Immediate Use The John C. Winston Company p. 6

[2]Fuller, Donald C. Reading for Typewriting, Part I, Journal Of Business Education, September, 1943 p. 17

theory in Typewriting Behavior that reading for typewriting after the earliest stage is by word-wholes and fragmentary segments.

From the evidence presented it would appear that the detailed word-recognition patterns are the basic reading patterns for typewriting. The eye-movement habits observed in both English and French typewriting copy and the nature of the kinesthetic typewriting pattern point directly to this fact. If reading by word-wholes alone took place, there would be far fewer fixations and regressions; the eye would take in a word at a single fixation and pause while the word was being typed. Instead there is apparent a more detailed scanning of the words--regular and even--and a supplying of copy to the hand as needed.[1]

Such studies as the one mentioned above are valuable to the teacher, but since reading is not the only cause of error, other studies into other causes are needed and are being made. This is not a simple matter, however, When the study, whatever it may be, is completed, there still remains the matter of interpreting the findings. We have only to look at the past to see how many diverse interpretations have been made of the same facts to see that this is the spot where teachers, researchers, and educators, each alone, or all together in one congenial company, may all too easily and all too often go astray.

Erasing

Perhaps in nothing else which pertains to instruction in typewriting has the pendulum swung to such far reaches as on the subject of erasing. From the days when to be seen having

[1]Fuller op. cit. Part III, Journal of Business Education, November, 1943 p. 63

possession of an eraser while in the typing room was almost enough to get the pupil suspended from class, or at least on the teacher's black list, to the recent times when some went so far as to advocate erasing during the beginner's first week is certainly a swing from the extreme right to the extreme left.

There are reasons in favor of erasing from the beginning of learning to type, but there are three arguments against it which are so strong as to weight the balance in favor of at least limiting the amount of erasing which is to be permitted. They are: (1) It is bad for the typewriters to allow everybody to erase since it tends to get them all gummed up with eraser chaff. Since erasing is a vocation skill if a choice is to be made, the seniors should have the prerogative of erasing errors, not the beginners. (2) It takes time to make a good erasure--and there it surely no point in practicing bad ones. The time spent in erasing might much more advantageously be spent in learning how to operate the typewriter more skillfully. (3) Remedial work is impeded if no one knows what the error was because it was erased.

Frederick G. Nichols, the main advocate of "early and always" erasing, had quite a bit to say on this subject in the Journal of Business Education[1] during and just after the

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[1]Nichols, Frederick G. Criticism, Comment, and Challenge Journal of Business Education, various issues (This column is in every issue, but not all apply.)

time of the country-wide use of the National Clerical Ability Tests. Many teachers went all out for such promiscuous erasing, but mounting typewriter repairs soon caused an about-face.

The teaching of erasing to those soon to be employed, however, is another matter. This, too, was long-neglected in the classroom until complaints from businessmen, who raised their voices long and loud in this matter, finally caused the change in procedure and opinion mentioned in the first paragraph (p. 131). A classroom teacher makes a comment showing how this fact was underscored in her mind:

> My attention was called to the desirability of teaching erasing more thoroughly in school by a man who has employed a number of our high school commercial graduates. He said, "That girl doesn't seem to know how to make a decent correction. She used to think everything had to be perfect and wasted reams of paper! I guess she must have been taught in school to rewrite all work with errors in it instead of being taught to erase. She never returns her carriage so eraser dust will fall on the desk. Her machine gets so sticky and gummy, it is not any wonder her work is a mess! And you should see some of her carbon copies!"[1]

One of the best articles on the subject of erasing from the Office Manager's point of view is by Bernice C. Turner.[2] This article brings out the point that it is not only how you handle the eraser but also how you handle your hands and where you put your fingers that makes or mars the erasure.

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[1]Pendy, Margaret (Mrs.) Des Moines, Iowa (clipping, source unknown)

[2]Turner, Bernice C. Coal Handlers and Fingerprint Artists Business Education World, May, 1939 pp.750-752

She also suggests the use of permissible strike-overs and partial erasing where the correction will cover up. Such ideas as these were--and still are--news to some teachers. The modern trend seems to be that the teacher is expected to teach the pupil how to erase well and to attempt to develop a nicety of judgment that will enable him to decide just how much pains to take with the erasing according to the use of the piece of work he is doing.

Antipathy toward Budgets

There seems to be nothing in the literature to indicate just when "budgets" began to be a taken-for-granted part of typewriting instruction. It is safe to say that some teachers never used them, but such teachers were in the minority. This "budget" idea evidently grew up some time in the "Glass-Wall Era" and probably originated as a "logical way" of having the textbook material divided into groups of papers on related kinds of work. However, in the thirties a reaction began to set in and feeling arose among teachers who preferred to teach against budgets as an interference with teaching. This feeling began to be made public in a number of articles written by teachers and Heads of Departments which appeared frequently in the periodical literature of that time.

Some arguments against the budget are: (1) it does not permit of the error's being corrected while it is "still warm" and the cause is known; (2) teachers spend too much

time correcting papers instead of correcting pupils at the point where the correction means something. It is true that there is a tremendous lag between the time when a practice begins to be frowned upon and the day when the last teacher abandons it, but it seems safe to say that "budgets" have had their day and have been superseded by the practice of using the class period in ways which (1) provide for effective group work, (2) maintain pupil interest at a higher level, and, (3) provide for more effective and individualized remedial work.

The Aftermath of the "Depression"

The difficulty in placing the high school graduate in the thirties led to re-examination of the curricula in the Business Department and to questioning whether we were not teaching too many people to type since the business world seemed unwilling or unable to absorb them all. This questioning and re-examination, in its turn, gave rise to follow-up studies, which are sometimes valuable, and occupational surveys, which are often already out-of-date by the time their data are available for use in planning the curriculum.

The educators and administrators, however, need not have worried in the post-"Depression" years about a necessity for limiting the number of pupils who elected typewriting, for that took care of itself. It came about, whether because of business conditions or for some other reason, that not so many pupils took the subject in many schools. At least, the

country-wide enrollments in typing departments fell off, although this was not true of every school.

Attempts at Prognosis and Guidance

The next step in the chain of events was to attempt to pick out those pupils who would make the best typists since it was intended to limit the number who would be permitted to take the subject. No really successful prognostic test, however, has yet been found. It may be that what will be needed instead of a prognostic test is better methods of instruction in view of the changes which have taken place everywhere since the first attempt was made to prognosticate success in typewriting. The present trend in public opinion is toward at least permitting everybody to try to learn to type if he wants to. Therefore, it is doubtful if the public will now permit any barriers to be erected which do not already exist here. In fact, the tendency has been to tear down those which prevented pupils who wished to elect typewriting from doing so in the past--such as the pupil's not taking the business course. The educational tendency at present seems to be away from the narrow and firmly delineated categories, "college," "technical," "business," etc., toward an interchange of courses, when it seems wise to a qualified counselor, to better fit the pupil for the contingencies of life which cannot always be foreseen even three or four years ahead.[1]

[1]Keithley, E. M. and Boisclair, Esther Guidance, Placement, and Follow-up in Business Education Journal of Bus.Ed. December, 1945

Increase in Size of Classes

During the 1930's classes were increased in some places to such great size that they were unwieldy. Teachers of such huge classes had little time to spend on individual differences. Teaching so large a group was in itself a problem which many found themselves unable to master to their own satisfaction. Dictaphone gang equipment was used with some of these large classes but there were many others which did not have it. So large a group seems a step backward toward the "Glass-wall" era, but it seems that the large class will still exist when and where administrators find it expedient.

Changes in Typewriting Room Set-up

In the early 1920's it was considered advisable to have as many makes of typewriters available for pupils' use as possible and so that the pupil might have a wide experience concerning them, his seat was changed every month or two so that he might become familiar with another make. As classroom teaching came to be more common, however, teachers found it a nuisance to try to tell, for example, how to set the margins on four or five different kinds of typewriters when none of the pupils knew how to set margins on any; and every time seats changed, this all had to be done over again. For this reason, many schools which were able to do so had beginning rooms so set up that all machines were of one variety so that when the teacher gave directions they might

apply to everybody. In the advanced typing room, the various makes were still available and the pupil obtained his familiarity with them then when he was better able to do so.

As the business world began to use more elite-type machines, alert schoolmen put them in the classroom too, but many classrooms still are equipped with only pica type, which confuses the young inexperienced employee on the job and causes businessmen to voice another complaint against the schools.

The really up-to-date advanced typewriting room also has one or two Electromatic typewriters so that pupils may accustom themselves to the difference between the touch and the slope of the keyboard on these machines and on those with which they have become familiar in earlier classes.

Personal-Use Typing

To fit the times, in the 1930's, there was a marked trend toward devocationalization of typewriting.

> For several years some leading educators saw fit to minimize the vocational values and to emphasize the general and social values of business-education subjects --including typing. Their point of view introduced countless questionable objectives and practices, most of which had to be disproved and rejected under difficulties.[1]

Therefore, about this time, the term "personal-use" typing was coined and a course in this introduced into the curriculum of the high school. This sounds good, but the aim at

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[1]Smith op. cit. BEW Feb., 1947 p. 322

that time seems to have been merely to substitute something easier for those pupils who found it difficult to meet the standards of the vocational course. Subsequent evidence has shown that the person who is not adequately trained so that he lacks a skillful mastery of the typewriter will not usually do even his personal typewriting if he can get anyone else to do it for him. For this reason a personal-use course which does not result in sufficient skill for the person to use the typewriter freely whenever the occasion arises may be said to have failed to achieve its purpose.

There have been books written especially for the Personal-Use Course in typewriting, and where the school is large, it may seem wise to have these pupils segregated in their own class. But a review of the probable uses of the typewriter in daily life will reveal that perhaps the needs of the two groups are not so very dissimilar after all. We are moving in the direction of skill or a reasonable facsimile thereof for everyone who takes typing.

Better Opportunities for Teachers to Learn

Even as late as the time of the "Depression" it was so difficult for a teacher to find a really good methods course that many teachers with experience refused to be inveigled into taking any. Such courses have been getting better, however, until now the teacher who wants to improve any aspect of his teaching will find it possible to get real help from such a source.

Another source of help to the progressive teacher is the periodical literature. This, too, has been steadily growing not only better but more plentiful. Early articles, while quite worth while, were often dull reading; those of more recent times seem to have been growing both more interesting, even to the point of being fascinating, and more explicitly helpful in solving the teacher's problems. Harold H. Smith's articles in 1939 and 1940 comparing teachers to athletic coaches were much superior, in the opinion of many teachers, to his earlier series in 1930, although all of them are well worth reading and have been much quoted by other authors.

Teachers who have worked in offices or are now working in offices write very helpful articles, too.[1/2] There is also quite a bit being published with regard to the advisability of the business teacher's having business experience.

In 1931 and 1932, the emphasis seemed to be predominantly on the teaching of beginning typing, as the following collection of titles from one publication alone will show:

A Period in Beginning Typing, December, 1931
Beginning Typewriting Class No Place for Bad Habits, May, 1931
A Day in My Beginners' Typewriting Class, June, 1931
The Beginner in Typing, January, 1932
First Two Days in Typing, March, 1932[3]

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[1]Turner, Bernice C. Coal Handlers and Finger-print Artists and Let's Rattle the Keys Business Education World May, 1939 and October, 1940 respectively

[2]Greenaway, M. Emily Somebody Ought to Tell Us These Things Business Education World May, 1944

[3]Journal of Business Education

Later the emphasis shifted to the advanced courses, which have more facets, so that authors wrote on some certain topic, such as Letter Placement--there are many articles on this, on both sides of the question, although placement tables are now being frowned upon, instead of being the thing as they were only a few years ago, and the late swing has been toward intuitive placement. There have also been excellent articles on such topics as Mailability, Production, specific tasks, such as tabulation, addressing envelopes, use of forms, stencil cutting, etc. Sprinkled through this literature from 1931 up to the present are various articles against using Budgets as the backbone of the typewriting course; and there is a slightly lesser sprinkling of articles suggesting various ways of grading for groups at all levels of learning. Certain specific faults of both teachers and learners have been mentioned and ways of correcting them suggested.

Articles on teaching the handicapped began to appear in the mid-30's to tell not only how it may be done but to reassure those who are skeptical that it is being done successfully.

The shift of emphasis in beginning typewriting from accuracy first to the speed approach as suggested by DuFrain[1] is likewise reflected in our professional reading. Whereas our reading once merely reiterated the importance of accuracy,

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[1]DuFrain, Viola The Practicability of Emphasizing Speed Before Accuracy in Elementary Typewriting Journal of Business of the University of Chicago, July, 1945

nowadays we have such articles as Accuracy First--I Wonder?[1]

The Gregg Writer, which may be assumed to be written for pupils and office workers as well as teachers, seems to be giving more space to articles on the improvement of typewriting in its practical applications. These articles are specific and actually tell how the worker may improve both the quality of her work and the quantity of production. The issues of the past year have been especially good in this respect.

New books, such as Marion Lamb's Your First Year of Teaching Typewriting,[2] seem to be likewise not only more readable but more helpful than the old.

Thus it appears that if the teacher has no other means at his command, he may still learn a great deal and keep himself up to date by his professional reading. It would be hard to find a time when the material provided in the periodical literature has been more concrete or more worth while.

Chapter VI -- The Development of Textbooks from the Beginning to the Present

The First "Manuals" Were Skimpy

Soon after the first shift-key model of the typewriter appeared on the market, instruction manuals of a sort began to appear, a far cry from the typing textbooks of today, but still a beginning step toward that expert operation of the typewriter toward which serious-minded business teachers are still striving.

> It is not known exactly when the first published instruction was offered in connection with the typewriter, but apparently it was contained in an undated circular put out by the Remington Sewing Machine Company, 258 W. Jefferson Street, Louisville, Kentucky. The date of a letter of recommendation printed in this circular is March 27, 1875, and we may conclude that publication occurred soon after.[1]

The circular mentioned in the foregoing paragraph "was on a single sheet, and was reprinted several years ago (1929) as a 'Fac-simile of the First Typewriter Catalogue.'"[2]

> On one side of this sheet was reproduced, full size the keyboard of the machine then sold, and beneath it this instruction:
>
> "Practise upon the above by touching each letter (one at a time) in any desired word, and the 'space-key' after the word. One or two hour's practice, daily, will soon enable you to write from fifty to one hundred words per minute, upon the machine."[3]

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[1] Blackstone and Smith op. cit. p. 4

[2] Smith, Harold H. The Teaching of Typewriting The American Shorthand Teacher, March, 1929 p. 240

[3] loc. cit.

It is impossible to determine, at this late date, whether that last line was dictated by optimism or just good salesmanship.

Smith's comment on the directions contained in the Remington circular is:

> It is interesting to note that at the very first the learning of typewriting was essentially by the "whole" method, so much discussed today as a new idea.[1]

When people learned as best they could to type with no teacher except perhaps a typewriter salesman, the only approach to a typing method was by a very general, "whole" method.

> No assignment of keys to fingers was made: pupils merely started in to write sentences. No technique existed. Everybody developed his own style.[2]

The purchaser of a machine could learn without a textbook, after a fashion, merely by "playing" with the machine, but when schools for the teaching of typewriting came into being, texts of some sort became an absolute necessity.

> Typewriter companies also found it desirable to issue textbooks and literature on the subject in order to curry favor with operators and thus lead them to influence sales of machines. Skilled operators were engaged to make demonstrations now and then, and they began to develop more skill, analyze as best they could how it was acquired, and tell and write about it. Individual schools and typewriter companies sponsored most of these publications and efforts.[3]

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[1] Ibid p. 240

[2] loc. cit.

[3] loc. cit.

> In 1880 there appeared a "Handbook of Instruction for the Typewriter." It contained "inductive exercises, arranged with a typical guide to correct use of fingers." It was prepared and published at New York by N. T. Underwood. There were 16 pages of material.[1]

> Between 1880 and 1889, many typing texts were published in printed or stenciled form. Among them were texts by S. S. Packard and Bates Torrey. Torrey was the first to feature touch typewriting as the true goal rather than simply all-finger typewriting.[2]

The First All-Finger Method

Mrs. M. V. Longley, wife of the shorthand author, Elias Longley, is credited with having perfected the first all-finger method of typing for instructional purposes in her Cincinnati school in 1881.

> In 1882, she made a strong plea to the First Annual Congress of Shorthand Writers at Cincinnati for the adoption of the all-finger method. Her textbook represented a definite advance over previous texts and was widely circulated and promoted by the typewriter companies.[3]

Her text was

> a 12-page instructor called "Typewriter Lessons." It was "for the use of teachers and learners, adapted to Remington's perfected typewriters," and published at Cincinnati.[4]

Almost immediately typewriting texts began to expand in length although some extremely short ones continued to appear.

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[1]Knepper op. cit. p. 81

[2]loc. cit.

[3]Smith, Harold H. The Story of Teaching Methods in Typewriting Business Education World, January, 1947 p. 276

[4]Knepper op. cit. p. 81

"Manuals" Become Longer and More Elaborate

> Probably the first extensive text was Haven's "Complete Manual of Typewriting." It was published by its author at Philadelphia in 1884. It had 92 pages.[1]

It was soon outdone, however, by the much more elaborate "Manual of Typewriting, Business Letter-writers, and Exercises for Phonographic Practice," the author of which was Frank S. Humphrey. Yet it will be noted from the title that this text did not confine itself to typewriting alone.

> Underhill, in "Handbook of Instruction for the 'Typewriter'" (1884), uses the three-finger method. He advises an alastic use of the third finger, also an interchange of work between the right and left hands in order to gain greater facility. So also does Haven's Manual, and that of Mrs. Longley. (1903). The last named gives special rules governing such interchanges.[2]

In letting the words to be typed set the pattern of the fingering and in having "rules" for such changing fingering patterns we seem to have a further analogy between typing and piano playing.

> In "Typewriter Speed and How to Acquire It," one of the experts advises reaching over with the right hand as far as "c" in such a word as scarcely, to equalize "the labor of both hands."[3]

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[1] Knepper op. cit. p. 82

[2] Smith op. cit. American Shorthand Teacher p. 242

[3] loc. cit.

"Manuals" Often Written for a Particular Make of Machine

If we had no other way of knowing, the titles of some of the manuals issued at this time would lead us to believe that each make of typewriter had its own text. It did not go quite this far, since there were many more kinds of typewriters at that time than most people have any idea of, but it is true that the leading makes had texts written especially for them. It is true also that some typewriters were so different from others that this was really necessary.

> In 1885, D. L. Scott-Browne published, at New York, his "Typewriter Instructor--Adapted to all writing machines." There were 23 pages in this manual. It provided instructions for the Remington, the Caligraph, and the Hall machines. Under the head of "Remarks" the author of this instructor said: "This work is an endeavor to present the facts in Typewriting as opposed to the false theories that have been the only guides for the operator up to date of this publication."[1]

While the above-mentioned text "instructed" on all writing machines, it did so only by giving separate instructions for each since the operation of the Caligraph, a double-keyboard machine, could not be the same as that of the Remington, a single keyboard machine.

> The author stated further: "Shorthand is an indispensable adjunct to the typewriter copyist's business." The close relationship between shorthand and typewriting is further shown by the fact that

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[1]Knepper op. cit. p. 82

Scott-Browne was at that time publishing the Phonographic Monthly and Reporters' Journal.[1]

Forerunners of Modern Methods

In some respects, Scott-Browne's "Typewriting Instructor" foreshadowed those of our own day.

> (It) gave preliminary instructions covering such points as: position, touch, spacing, removing paper, and reversing the carriage, the bell, ribbon reversing, adjusting the paper, scale, capitals, and fingering.[2]

In one respect, however, he was far from modern.

> In his discussion of "fingering" the instructor did not specify which keys were assigned to each finger except "the ones most convenient to each." Three fingers on each hand were to be used. In this manual great emphasis was placed on accuracy. Practice was first on words, then on common phrases, and finally on sentences.[3]

Another manual, that by Robert H. Elder, (1889) proposed what was at that time a unique scheme of learning to typewrite:

> He advocated learning the keys by position rather than at sight. This procedure, it was claimed, would greatly reduce the learning time and would also aid in acquiring speed. He provided two "home" keys, "f" and "p".[4]

It is difficult for the teacher of today to get the mental picture of having these two as the home keys, especially since the implication is that the keyboard was the same as it is now. He also suggested that

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[1] Knepper op. cit. p. 82

[2] loc. cit.

[3] loc. cit.

[4] loc. cit.

> "Nine out of every ten writers on the 'Remington' machine use only one finger of each hand, on account of the compactness of the keyboard (a valuable feature in a typewriter) and can attain the highest speed possible; but, for persistent application for many hours, more fingers in use are preferable."[1]

It is apparent from the above comment that long hours at the typewriter were, in those days, the exception rather than the rule, and people had not come to accept as a matter of course the role of the copyist or transcribing machine operator who spends an entire working day operating a typewriter at top speed. In spite of this comment, however, Elder provided two-finger-per- hand exercises but not all-finger material. He, too, varied his instructions according to the typewriter and gave separate instructions for the Caligraph.

Charles H. McGurrin--Frank's brother, also an expert typist and demonstrator--expressed the belief that, while one could doubtless learn to "operate the typewriter without instruction," it was possible to accomplish the best results only by "learning and practicing some systematic method." He prepared a "Treatise on the All Finger Method of Operating" the typewriter.[2]

John Harrison's "Manual of the Type-writer" (London, 1888) is an example of the way instruction came to be systematized for school purposes.

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[1] op. cit. p. 82

[2] loc. cit. p. 83

> After six exercises on the alphabet (using three fingers on each hand), a few frequent words and sentences are introduced. Business letters are introduced in Exercise 11. Much space is devoted to spelling, punctuation, rhetoric, and business abbreviations and terms.
>
> When any system was observed in setting up the exercises, it was usually by alphabetical arrangement of the words to be practised. Usually above or below each letter appeared a number signifying which finger was to depress the corresponding letter. This was used at least as late as Mrs. Longley's "Remington Typewriter Lessons," copyrighted in 1903.[1]

It may be assumed that it was the method of indicating the fingering set forth in the last paragraph which gave rise to the term so frequently used in those days, "the piano method of teaching typewriting."

The First "Publishing House" Text

In 1889 the first text put out by a regular publishing house appeared--up to this time texts had been published by individuals usually those connected in some way with a business school. This text was published by H. B. Bryant and Sons of Chicago. Its title was "Standard Method of Operating the Remington Typewriter without Locking the Keys"[2] and it was written by Frederick I. E. Akers. Here again we get the implication that texts were devised to apply to a certain make of typewriter since this author has even gone so far as to name a specific typewriter in his title.

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[1] Smith op. cit. American Shorthand Teacher p. 242

[2] Knepper op. cit. p. 82

Texts for "Touch" Typing

As "touch" typing began to be accepted by progressive instructors, it, too, began to have texts written especially for the teaching of it.

> Torrey showed some ingenuity in his "Practical Typewriting" by printing righthand figures and letters in bold face, while lefthand characters were in ordinary type. He was the first apparently to use the following type of drill:[1]

111	111	**222**	222
uuu	fff	**kkk**	ddd

It is assumed that here, as in Harrison's book, the figures above the letters indicate the fingering, which, it will be noticed, was the same then for these particular letters as it is now.

> The only idea in his mind appears to have been to teach the finger through repetition, for he gives no instructions as to how to practise this exercise. His sole description of technique can be summarized in an appeal he makes to cultivate "graceful" and "harmonious action".[2]

In 1890, Fred P. Garin published a 24-page manual on "Touch-writing."[3] This described itself as "A handbook arranged for self-instruction in the art of operating the typewriter by touch." A year later B. J. Griffin brought out his "Practical System of Typewriting by Touch."[4] It, too, was

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[1] Smith op. cit. American Shorthand Teacher p. 242

[2] loc. cit.

[3] Knepper op. cit. p. 83

[4] Ibid p. 82

for the Remington keyboard and was claimed to be "On Scientific Principles." Mr. Griffin's school in Springfield, Massachusetts, was the first to standardize on the "touch" system exclusively in 1888 or 1889.

Two later Longley texts (see p. 145), strangely enough, appear to have come out in the same year: "Longley's Typewriter Instructor," published through Typewriter Headquarters, New York, and "The National Typewriter Instructor," also published in New York. Both of these were published in 1891. (see Appendix B) These books showed an early attempt at scientific analysis of the keyboard. Knepper comments that the first-mentioned text, as might have been expected, was dedicated to Mrs. M. V. Longley, designated as

> the "Originator and First Teacher of the Eight-Finger Method of Manipulating the Remington and Caligraph Typewriters; author of the first Instruction Book in accordance with the same."[1]

Knepper goes on to say:

> There were two editions of this work: one was for the Remington keyboard, while the other was a Scientific Key-Board Edition. This Scientific Key-Board was based upon the following assumptions:
>
> 1. That standard operators use all fingers of both hands.
>
> 2. That a methodical fingering is preferable to a haphazard one.
>
> 3. That the first and second fingers of each hand are more easily and forcibly used in manipulating the keys and should therefore be more frequently used.

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[1]Knepper op. cit. p. 82

4. That such arrangements favor writing by touch, without watching the keyboard.

A very careful comparison was made between this Scientific Key-Board and the Remington key board. As a result of this comparison, the conclusion was reached that on the Remington the left hand had the greater amount of work to do and also that an unduly heavy burden was placed upon the weaker fingers of either hand.[1]

Unison Drill Recommended by Van Sant

Van Sant in his "Touch Typewriting" (1898-1902) recommended unison drill with the teacher calling the letters, "the class writing together, and at the end of the line returning the carriage at a given signal."[2] This practice was not followed by teachers, however, except in rare instances, until the time of World War I.

Textbook Writers Active from 1890 On

When typewriting was put into the public high schools, the previous sketchy manuals and texts were found not to be entirely satisfactory. Better ones were then brought out.

In the years 1893 to 1899 inclusive, not fewer than a dozen new typewriting manuals were published. Some of these must have had fairly wide use, for they were later revised a number of times.[3]

Until 1916 all texts regarded the guide keys as "a" and ";"--called "anchor" keys. This long duration of the idea was entirely due to the emphasis placed upon the subject as a matter of teaching and not as a

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[1]Knepper op. cit. p. 83

[2]Smith op. cit. American Shorthand Teacher p. 242

[3]Knepper op. cit. p. 147

> matter of learning. Furthermore, authors who had committed themselves to a given method held tenaciously to their published views and changed over only after some other way had secured a good hold. This may be traced in the Barnes and Van Sant texts, among others.[1]

More material was added to the textbooks to give the learner more varied practice. Writing sentences or the alphabet over and over again was supplanted by other types of material better suited to learning.

> Texts gradually padded the drills in the keyboard division and added greatly to the practical applications--letters, bills, legal papers, specifications, plays, etc. This was done while the teaching was mostly in the hands of expert reporters and general stenographers.[2]

The concept of the "home row" came into being and a method of "keyboard approach" was incorporated into textbooks:

> Between 1895 and 1900 the general trend was toward developing a systematic approach to the subject. This easily took the form of what we now know as the "keyboard approach," and since the keyboard was divided into rows, one of which was the guiding row, it naturally took the form of the "row method" of approach.[3]

After 1900, although texts continued to be written by business school teachers or the manufacturers, publishers of established reputation began to show an interest in this field, although this was done very gradually. According to Smith, "Great activity marked the decade 1900-1909" in the writing of textbooks.[4]

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[1]Smith op. cit. American Shorthand Teacher p. 243

[2]Ibid p. 242

[3]Ibid p. 243

[4]Smith op. cit. Business Education World, Jan. 1947 p.277

"Horizontal" versus "Vertical" Approach

Two schools of thought grew up, those which approached the learning of the keyboard via the home keys (the "horizontal" approach) and those who taught finger by finger, starting with the index fingers (the "vertical" approach).

> Mrs. Ida M. Cutler's first-finger-first pattern of teaching typewriting was first published in 1902 under the authorship of Mrs. Cutler and Rupert P. SoRelle. Mr. SoRelle, teacher of typing at Gregg School, Chicago, prepared the manuscript under the personal direction of John Robert Gregg. Improvements included the organization of "lessons" that could be completed in the usual 45-minute practice period, a better grading and selection of practice material, and more thorough and systematic treatment of the various kinds of applied typing work.[1]
>
> Teachers soon learned that pupils acquired control of these fingers more easily and were free from the universal discouragement attendant upon the multi-finger approach. As studies were made to check precisely what the student learned and the order of his learning, the correctness of the first-finger-first approach was justified even beyond the foresight of Mrs. Cutler.[2]

Texts Show the Trend of the Times

As there came to be greater demand for qualified teachers and more actual instruction under classroom conditions, "the type of manuals used in this period clearly indicates this tendency."

> Moreover, there began to be more specialized texts, such, for example, as C. P. Fisher's "The Typewriter in Cataloguing and Self-Listing." Various

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[1]Smith op. cit. Business Education World p. 277

[2]Smith op. cit. American Shorthand Teacher p. 243

"Methods" were emphasized such as the "piano" method and the "alphabetic" method.[1]

Number of Typewriting Texts Increased Rapidly toward End of Secondary School Period

The writing of typing texts seemed to gain momentum as time went on. Knepper says:

> The next few years witnessed the greatest activity in the production of typewriting manuals. In the remaining eight years of the Secondary School Period, not less than fifty manuals and other works on typewriting were published. Typewriters had become sufficiently standardized by this time so that some of the texts then produced have continued in use even down to the present, of course with revisions. Touch typewriting was strongly emphasized, although some writers arranged for the use of but three fingers on each hand. During this period publishers that specialized in commercial texts entered into the publishing of typewriting manuals. Some of the better texts were brought out by them. At least one manufacturer published a text during this time. Business schools and teachers in business schools continued active in the production of texts. Some were provided with high school editions.[2]

Textbooks Continue to Reflect the Thinking of the Times

Textbooks at this time were written apparently with a view to having the beginner spend plenty of time in "learning the keyboard" since considerable material was given for each group of letters to be learned before proceeding to the next. Pupils spent weeks writing nonsense syllables and lines of words before being allowed to write a single sentence. Tests wherein pupils filled in blank keyboards

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[1]Knepper op. cit. p. 147

[2]Knepper op. cit. p. 149

were considered a necessary part of teaching typewriting by many teachers. Forms for such tests were supplied by the publishers as a supplement to their text or they could be obtained from the typewriter companies. (see p. 103--Owen)

Although teachers were unaware of it then, much of the keyboard drill was presented and practiced in such a way as to develop a tendency toward homologous errors. At that time the method used was thought to be good because it was "logical".

Little by little, however, teachers and textbook writers came to see that writing a line or several lines of the same word was bad. Clem gives a case in point:

> Here is a boy in a typewriting classroom sitting at a typewriter; his posture and hand position are good; he is striking the keys uniformly and rhymically. Notice, however, that he is writing with his right hand only, while his left hand rests in his lap; his facial expression indicates clearly that his mind is anywhere except on his copy. What motive has he to follow copy? He is writing one word over and over again. Furthermore, all the keys required to write that word are operated by the right hand. No attention whatever is required, and there is nothing to compel him to concentrate on the copy. Now let us place before that student copy that requires constant use of both hands, with the words in each line of the exercise so varied that they cannot be written unless the eyes are kept on the copy continually. What is the result? The pupil is interested in turning out a satisfactory finished product. * * In order to accomplish that objective it is to his interest all the time to keep his eyes on the copy.[1]

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[1]Clem op. cit. p. 132 quoting J. Walter Ross, original source not given.

Improvement of Arrangement and Materials in Texts

The Harned text was one of the first to avoid the writing of whole lines of words. It built new words from other similar words, as the line progressed, changing constantly, which forced the pupil to follow the copy closely. It did not, however, contain keyboard charts, and for those who attempted to learn to type by its use and who had no chart available from any other source, the method of locating the keys is quite complicated. For example, in Lesson V, there is a paragraph of ten lines of quite fine print, which explains that "'m' of the first row is in line with 'j' of the second row and with 'u' of the third row," etc., for the entire keyboard. It is difficult to see how anybody could get a clear mental picture from such a description.[1]

Textbook writers came to realize that the material offered for practice had a direct bearing on the habits which were formed by typewriting pupils and gave much thought to the matter. Webb, himself a textbook author, said:

> Materials Influence Habits: Uniformly correct operating habits underlie reliable skill. It is right, therefore, that the materials for use in the introductory stages be such as to render easy the setting up and fixing of proper habits.[2]

His text was considered by many teachers to be superior in

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[1]Harned, William E. Typewriting Studies Ginn and Company 1923 p. 20

[2]Webb, R. F. Selecting Typing Materials Business Education World, November, 1935 p. 204

the matter of developing correct fingering.[1]

The older textbook writers, however, had had a different idea of the purpose of the materials in the text, judging from the content of the exercises they required the pupil to write. Apparently they thought that development of good character and literary taste were at least secondary objectives of the typewriting course. It may have been that they made the development of literary taste the primary objective since teachers have thought that such exercises were actually difficult to write because of the language used, as in certain excerpts from Emerson and Ruskin. It is apparent that material like Kimball copy or the more informal material used in today's texts is much easier for the average person to write at a rapid rate. It is only on copy similar to this that speed can be built.

The publication of various lists of common words like the Ayres and the Horn Lists had a great deal of influence on typewriting texts. Some writers attempted to give a great deal of practice on these words in order to make them automatic, but a later tendency was to assume that since they were the most commonly used words, they would naturally be written most frequently in ordinary straight copy without having particular attention given to them.

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[1]Webb, R. F. Webb's Simplified Typewriting Prentice-Hall 1935

Many Varieties of Keyboard Approach

The textbooks likewise reflect the changes in time taken to cover the learning of the keyboard, which is an indication of the changes in psychological thinking here. When it was stylish to go slowly in learning the keyboard, texts contained page after page of keyboard drills, reinforced with words, phrases, or sentences containing only those letters. A examination of a text such as the New Rational[1] with Webb's text[2] which came out about ten years later will show that the time to be taken in learning the keyboard has been shortened considerably. But an examination of a recent text will show that eventually it became the thing to cover the keyboard very quickly. Because of this, the pupil was permitted, in successive editions of textbooks, to get to writing material that made sense much more quickly.

Not only the time consumed in the approach to the keyboard but the manner of it came up for discussion. The simplicity of choice between "horizontal" approach or "vertical" or some hybrid of the two was superseded by the complexity of "part" or "whole" and the offspring from these, which came to be termed "part-whole," "whole-part," and "part."

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[1]SoRelle, Rupert P. New Rational Typewriting Gregg Publishing Company 1927

[2]Webb op. cit. (see p. 159)

And, of course, each of these methods had its followers among the textbook authors as well as among the teachers.

Teacher's Manuals Reflect Changed Views toward Accuracy

In their instructions to teachers, too, textbook writers reflected the current practices in psychology or in approved teaching methods, as well as in the textbooks themselves. The Manual for 20th Century Typewriting, for example reflects the passing of the perfect-copy plan and, while it is willing to permit it if the teacher insists, it suggests three other plans of handling the work: the alternate-copy plan (pupil's choice of which one is to be graded); the total-production plan (its chief disadvantage is the burden of marking a large number of papers); and the limited-error plan. This manual also makes suggestions for grading pupils and takes into consideration that some schools teach on a single-period plan and some allow a double period for typewriting.[1]

Emphasis on Production

In the old days when textbooks encouraged pupils to type rather slowly to insure accuracy and to try always to write in rhythm, the text and the teacher alike cautioned the pupil that double letters were to be given the same time always in being struck. The pupil who struck the two to

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[1]Lessenberry, D. D. and Jevon, E. A. Manual for 20th Century Typewriting, Second Edition, South-Western Publishing Company 1934 p. 7

sound like one was immediately and thoroughly reprimanded! Now the pupil is not only made to speed up the double letters but common words and phrases are quickly automatized and the text is arranged with this in mind.

Up-to-date texts also remind the pupil (as his teacher has told him) that he types at different times for different purposes in order to develop speed, fluency, and control. And the pupil is told just what he is supposed to be working for at any given time.

In texts in the twenties so much time and space was devoted to short "drills," straight-copy paragraphs, etc., that only the very superior pupil ever wrote a business letter during his first year--and tabulations only long after Easter. Such things were left for the "advanced" pupils. But now, things have been speeded up to the point where the beginning pupil not only writes letters and tabulations but much sooner than ever before. Furthermore, the tendency in today's texts is to tell him how long it should take him to write this letter so that he may know how well he is doing.

More Thinking Now Required of the Pupil

The trend among textbooks for a decade or more has been to cause the pupil to do more thinking so that the work in school and on the job may be made more nearly similar. Old-time texts displayed tabulations and letters all set up in typewriter type so that the pupil merely made a copy but

did not learn how to go about setting up new material. An examination of older texts will show tabulations which show in small figures where the stops are to be set and many (probably 10 or 12 or even more) letter styles, also all set up, which the pupil is to follow according to directions in doing the work of the text. Today, textbooks give charts showing how to go about figuring a tabulation and ways are suggested of doing it even more quickly. Letter styles have been reduced to the few most common which are also those which can be done most quickly and, in order to build speed, the pupil is often asked to type the same letter to several addressees, using the principle of repetition to build speed in production.

Letter Placement Tables came to be included in most texts in the mid-thirties since they were in favor among teachers at that time, but today we are in too much of a hurry to bother with figures when the eye and a "placement sense" which can be developed are so much quicker. So textbooks, too, take this into consideration and attempt to assist in developing such a sense.

Correlated Workbooks and Other Aids to Teaching

Typewriting textbooks in the thirties--or even earlier--began to include progress sheets (removable or supplementary). These took two forms, columnar to show what work had been done with its grade and graphic for plotting speed and accuracy on timed work.

Correlated workbooks have also been published, or envelopes of forms, the first of which appeared in the late twenties. Some companies also produced letterheads for the letters in their texts, both full-page and half-page, in accordance with the trends in business.

Supplementary Books

Beginning with the mid-twenties, many companies published supplementary books, some of them having quite a variety to offer. Most of these were of the small paper-covered kind and were devised for diverse purposes, some of which were: additional keyboard drill, extra speed practice, further tabulation or rought draft work, etc.

Special Texts

Texts to be used with Dictaphone-gang equipment in large classes of beginning typewriting were perhaps the first of the special texts to come on the market. This was in the 1920's. These may also be used in the ordinary classroom without the Dictaphone like any other text.

As time goes on, more and more texts are written for special purposes. Now we have several texts available which may be used in the classroom for the purpose of improving spelling by the kinesthetic memory involved in writing the words on the typewriter. We also have texts which have been specially written for the teaching of the handicapped, that is, those who have only one hand or who have fingers missing. These are of special interest now on account of

those veterans who came back to us maimed from the War.

While personal use typewriting is generally taught by the use of the same text as the vocational classes, there are one or two good books on the market which emphasize this angle, especially for the junior high school pupil. For adults who are in a hurry to learn to type there are books which offer to teach them in a hurry.

So a survey of the textbook field reveals that the textbook writers have been alert to every need as it has sprung from daily life and have tried to meet it as fast as the desire has been made known. They have sometimes entered complaint, though, against teachers, saying that their purposes have not been carried out and that for this reason they have sometimes felt that their text fell short of its potentialities in accomplishment. A list of even the reasonably well-known texts in the field covers two or three pages and there are many more rather obscure ones.

Chapter VII -- Developments from World War II

Growth of Research

One development from World War II was the increased interest in and use of research techniques. This was accentuated by Government interest in and use of research for determining the best way of doing things and the persons best fitted by natural ability and aptitudes to do them. This sort of thing had been begun in World War I, when the first intelligence and aptitude tests were used, but it reached such proportions in the Second World War that its growth may easily be said to have increased several hundred per cent.

Re-examination of Previous Research

A very interesting and enlightening feature of the studies made at this time was the re-examination of previous research. The most peculiar thing here is that such re-examination did not always give the same conclusions from the same research study as were reached upon the original examination of the facts brought out by the study. An example of this is the Gilbreth study of brick laying. The conclusions arrived at by DuFrain[1] were not the same as those reached by Book.[2] Book's theories were based on the

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[1]DuFrain, Viola--The Practicability of Emphasizing Speed Before Accuracy in Elementary Typewriting Journal of Business of the University of Chicago, July, 1945

[2]Book, William F. Learning to Typewrite Gregg Publishing Company, 1925

elimination of waste motion while those of DuFrain were based on the point made by the Gilbreths that the motions of the expert are not the same motions as those made by the novice, nor are fast motions simply slow motionsspeeded up but entirely different motions.

The Bryan and Harter studies have also been recently exhumed and are being discussed at some length in current writings. It seems likely that they will be much more valuable to us now than ever before because we are just beginning to understand their implications. One such discussion is that by Smith[1] which reviews not only the studies pertaining to telegraphy but also those which pertain to other skills. Here, too, somewhat diverse conclusions have been drawn from the same study by different experts. Tidwell makes this point when he says:

> Some writers and students of psychology have interpreted the Bryan and Harter studies to mean that in such skills as typewriting, the keyboard should be presented by a process of whole words and that the letters should emerge from the wholes. Those who would completely ignore the isolated letter stage as a part of the learning procedure have not read carefully the studies of Bryan and Harter. It seems to me that we cannot escape performance on all three levels; that there are times when one is forced to type letter by letter even though he be the fastest typist in the world.[2]

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[1]Smith, Harold H. A Classic Research in Human Skills Business Education World, January, 1944, March, 1944, September, 1944, March, 1945

[2]Tidwell, M. Fred Research in Secretarial Science American Business Education Quarterly, May, 1947 p. 258

Changes in Terminology

Men have always found it difficult to describe acts and feelings by the use of words. The same word means different things to different people. The changes in educational procedure resulting from some of the developments in research and time and motion studies caused some previously accepted terms to be eschewed and others to be substituted for them for the sake of establishing a more exact usage. Other words were also dropped from current use because they had come to have some undesirable connotation and it was desired to make a fresh start with a new name for an old act, and so on.

Time and Motion Studies

Time and motion studies moved from the factory and assembly line into the office. Business, with reduced equipment and fewer workers, on account of the War was faced with ever greater demands that it "produce" more work in a given time; and time and motion studies to eliminate useless tasks and motions seemed to be the only feasible solution. Some of this increased work was caused by the many questionnaires and other forms--to be filled out in triplicate, quadruplicate, and ever-increasing ratio--which the Government had made a part of the businessman's daily life. There was no avoiding of dire consequences if deadlines were not met; the days when Business could procrastinate and get out

its reports in its own good time were over. Now was the time--and some way had to be found of getting the work done--now! Reports from these time and motion studies, telling ways which were discovered of eliminating waste motion and even waste tasks are just coming to be published at the present time. Furthermore, such studies are still going on.[1]

Another indication of the great interest displayed by those in positions of responsibility in possible ways of saving time is indicated by the publication of a Manual of Practical Office Short Cuts, published by the National Office Management Association. This is reviewed for the teacher in a recent periodical.[2] The teacher who has had considerable business experience will find most of these short cuts already in his repertoire; others will do well to adapt such of these as are suitable for classroom use in order to more nearly bridge the gap between school and life.

Demand for Better Teaching of Figures

The work of the typist in business became more and more involved with figures, as people, machine parts, and manufactured products came to be referred to by number as well as or instead of by name. Likewise more and more copies of everything that was typed were demanded. Now the fact that

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[1]Schmidt, Martin F. Time and Motion Study in the Office UBEA Forum, February, 1948 p. 35

[2]Freeman, M. Herbert Research Notes American Business Education Quarterly, October, 1947 pp. 70-74

many typists were not at home on the top row of the keyboard was made more evident and annoying by faint or illegible figures in the carbons, thus necessitating wasteful delays and telephone calls to ascertain the facts.[1] Businessmen reported this back to the schools and asked that something be done about it. This set the move on foot for the automatization of the figures and changes in teaching methods to insure that this shall take place. The most recent development in the teaching of figures is the pairing of common words with the figures struck by the same fingers. Examples are: were 2343, or 94, tip 580, yet 635, rut 475, etc.[2]

Multiple Carbon Work, Forms, and Erasing Thereon

Business also amplified its demands to ask that more carbon work be taught in the schools to insure deft and rapid handling of the assembly and more efficient and careful ways of erasing multiple carbon copies. It was suggested, too, that teachers insist that pupils protect the carbon paper as well as the carbon copy while erasing, since if the surface of the carbon paper became damaged because of its fragility, faint spots in subsequent copies were likely to cause annoyance or more disastrous consequences.

Because of the increase in the number of forms to be filled in, businessmen asked that schools also teach such

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[1] Greenaway, M. Emily Somebody Ought to Tell Us These Things Business Education World, May, 1944 p. 488

[2] Huffman, Harry Procedures and Techniques for Developing Statistical Skill in Advanced Typewriting UBEA Forum November, 1947 p. 45

filling in with special emphasis on crowding into a small space where necessary and developing the ability to type right to the bottom edge of the paper; and to do all this with precise alignment of carbon copies of the form.

Increase in Number and Use of Visual Aids

The Government found that it was necessary to establish classes and do a great deal of teaching in many fields, from the teaching of reading to illiterates up to the teaching of very technical subjects. In between this high and low point somewhere came the classes in typewriting.

In the teaching of many subjects, and even in such matters as developing tactful and effective ways of handling people, movies and film strips were found to be an excellent way of teaching, since they not only reduced the learning time but they seemed to make the learning stick. Because of the Government's need for movies and film strips to teach these classes, including typewriting classes, many new movies and film strips were made at that time by them or for them. Some of these are now available for classroom use.

Educators who had been interested in movies found their own interest quickened in the subject by what the Government was doing, and movies pertaining to increasing efficiency in typewriting, office procedure, and related subjects were made privately to be distributed by typewriter companies, schools of teacher education, authorized film distributors, and others.

The Need for Typists

The increase in the paper work to be done caused an increase in the demand for typists at every point where war business was carried on. The need of the Government, however far outdistanced that of Business. Women were recruited by agents for Civil Service jobs just as they were recruited for the WACS, WAVES, and other branches of War service. Not all women willing to go into the service of the Government were worth recruiting, however, and the Government found it necessary to do considerable teaching to enable them to do the required work.

> Our entry into the War at the end of 1941 caused almost all bars to be dropped. Inexperienced operators typing with one or two fingers on each hand got temporary Civil Service jobs at $1440 a year and up. Government departments and agencies were forced to organize their own intensive training departments; and they had a hard time finding teachers capable of handling these very intensive courses.
>
> The best of these, constituting a very small proportion of the whole, used methods that progressive teachers had already proved. What a job they did![1]

Classes were likewise organized for teaching those who knew no typing whatever, as members of the WACS, WAVES, etc. Considerable numbers of women and girls in civilian life who might not otherwise have done so took a typing course at the behest of some businessman or because of the pay being offered. The public became so typing-conscious that the

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[1]Smith, Harold H. The Story of Teaching Methods in Typewriting Business Education World, March, 1947 p. 404

subject was taught in liberal-arts colleges where it had never been taught before; and these colleges were finally induced to allow credit for both typing and shorthand as an inducement toward encouraging more persons to study these subjects because of the voracious demand for workers.

Developments from Accelerated Wartime Training Courses

The experiences, conclusions, and recommendations of the teachers of these intensive programs for learning typing at an accelerated rate or retraining those who were inadequately trained constitute a valuable part of the periodical literature which has been published since the war.

The Speed Approach (DuFrain)[1] may be considered to be an indirect development from such wartime training courses. Other developments which are already affecting classroom teaching are: The use of the Demonstration Technique, as set forth in Stevens'[2] article, Know How, Show How; the greater emphasis on the efficient use of the service mechanisms on the typewriter; the difference between typing for gains in speed and typing for control; the abandonment of placement tables as time-wasters and the development of intuitive placement of the kind recommended by Pepe;[3] and, for prognostic purposes, the re-enforcement of the knowledge

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[1]DuFrain, Viola The Practicability of Emphasizing Speed Before Accuracy in Elementary Typewriting Journal of Business of the University of Chicago, July, 1945

[2]Stevens, Catharine Know How, Show How Business Education World, September, 1945 p. 16

[3]Pepe, Philip The Intuitive Approach to Letter Placement UBEA Forum, November, 1947 p. 37

that there is little relationship between I. Q. and the ability to learn to type.

In private life, because of the interest in learning to type, there were developments such as the classes taught by Donnelly[1] at the Y. W. C. A., which came to be imitated by a few others elsewhere in the country. An outgrowth of this type of personal-use course is Pepe's book on learning to type in 24 hours;[2] an outgrowth of the public interest is the occasional article which appears in popular periodicals on how to teach oneself to type in a few lessons.

The Relationship of Table-Chair-Height to Speed and Accuracy in Typing

Lamb, who because of her work for the Government during the War, was in an especially good position to observe such details, says in her book:

> Your classroom furniture is of first importance because table and chair must be so adjusted to each typist's stature that her arms, wrists, and hands are in the correct position for typing. If the hands are parallel to the keyboard, the fingers are in easy control of the entire keyboard.[3]

She goes on to say that this may be achieved to take care of individual differences by having tables of different heights or chairs of different heights or both.

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[1] Donnelly, Frank P. Learn to Type with 24 Hours' Instruction Business Education World, May, 1943 p. 524

[2] Pepe, Philip S. Personal Typewriting in 24 Hours, Gregg Publishing Company, 1947

[3] Lamb, Marion M. Your First Year of Teaching Typewriting South-Western Publishing Company, 1947 p. 25-26

> Whichever means you use, remember that the correct relationship of arms, wrists, and hands to the keyboard must be established. Hands should slant according to the slant of the keyboard. The student who is perched on a chair cushioned by a dictionary with a stack of books at her feet has a complaint against the School Board * * * although she owes them a vote of thanks for an instructor who understands the importance of correct typing position.[1]
>
> Adjustment of the equipment to a particular student must be approximate rather than precise because several students sit at the one typewriter in the course of a day.[2]

One of the results of studies made in Government offices during the War was the re-establishment of the premise (recognized during the first decade of the century) that table and chair height have a great deal to do with the quantity of work produced, the quality of work produced, and the fatigue induced in the typist while producing it.

Lamb tells about this study in great detail, only a small portion of which is included here:

> In Government agencies little had been done to determine correct typing levels until 1932 when * * * a box (was designed) to place on typing boards or desks to elevate the typewriter to the desired height. Eight of these "lift" boxes were made in three heights --2", 3", and 4", and they were installed in the Training Division for trial use by the typists.
>
> First of all the typist's chair was adjusted so that the typist's feet were comfortably flat on the floor and so that the back support fit into the "small" of the back at waist level. After the chair had been adjusted so that it helped the typist keep her back and

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[1]Ibid p. 27-28

[2]Ibid p. 28

shoulders straight, the typewriter was raised so that the forearms of the typist were at a 30° angle and her hands parallel to the slant of the keyboard. The size of the lift box used depended, of course, upon the height needed to place the typist's arms and hands in this position.

The adjustment of equipment to typists in the Division of Training proved so successful that * * * * approximately 4000 boxes have been given to Department of Agriculture typists to date.[1]

Typists reported that the boxes reduced fatigue and made their work easier. Equally important, placement of the machines at the proper height for typists no doubt improved their control of stroking with consequent reduction in errors.[2]

The facts determined by this experiment have been published in a booklet,[3] with illustrations to show that "the 'stenographer's stoop' is caused by the low placement of the typewriter 26 inches from the floor" and how much better the stenographer looks and works if her equipment is correctly adjusted.

It takes some time for all the evidence to come in from so vast an influence as World War II and it may be that the complete story has not yet been heard. Many changes have already been made a part of current teaching practice by progressive teachers because of the facts which have been

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[1] Ibid p. 28-29

[2] Ibid p. 29

[3] A Study of Typewriter Height The Society for the Advancement of Management, 84 William Street, New York 7, New York

obtained and which have been mentioned in the foregoing pages. There are probably still others yet to come but whose acceptance will come more slowly because the implications to be made from them are not quite so obvious or because they involve changes which are more difficult to effect.

Chapter VIII -- Unfinished Business

Development of Speed with Accuracy

Forty years ago we were surer that we had reached the limits of human speed and facility in operating the typewriter than we are now.

> Rose L. Fritz, when she had won the world's championship typewriting contest in 1906, by writing 82 correct words each minute for one hour, told the director of the contest that this was the human limit for typists, that 82 words perminute was as fast as any human being could ever learn to write. But Mr. Kimball assured her that this was not the limit for this type of skill, that this record would be surpassed, and that even she could break it if only she made up her mind that it could and must be done.[1]

Our attention now, however, is not so much given to the establishment of new records by champions as it is to bringing up the performance of the average person to new levels of efficiency and enjoyment of the performance.

Individual Differences

Even greater attention must be given to individual differences than has ever been given before.

> It seems inevitable that the time will come when every pupil will be expected to be able to operate a typewriter and when typewriting may largely take the place of longhand writing.[2]

Teachers may come to the point of seeking, not one "best"

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[1]Book op. cit. Learning to Typewrite p. 359

[2]Blackstone, E. G. and Yerian, C. T. Typewriting for Personal Use, Second Edition, Gregg Publishing Company 1935 Preface p. ii

method by which to teach all pupils but the one best method for each pupil.

Teachers Must Study How to Offset Pressure by Relaxation

Teachers must be experts in applied psychology, too, to bring the necessary pressure to bear on the pupil to develop the required speed without causing him to become too tense to type fluently.

> Pressure is needed most of the time, to insure rapid and safe progress. This pressure may be self-imposed; but it is usually necessary for the teacher to impose it by pitting students against one another, against their own best previous performance, or against time. * * All intensive efforts must be followed by deliberate relaxation until the habit of relaxing is formed to offset typing fatigue and to prevent loss of control.[1]

One means of providing relaxation is dictation direct to the typewriter, in which the relaxation may be provided not only by the method of writing but further by the nature of the material. Another means of providing relaxation is composition at the typewriter, the teaching procedure for which is given in Typewriting for Personal Use[2] in the Preface and throughout the text. Both of these are excellent pre-transcription measures in addition to their value for providing relaxation.

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[1]Smith, Harold H. The Story of Teaching Methods in Typewriting Business Education World, March, 1947 p. 405

[2]Blackstone, E. G. and Yerian, C. T. Typewriting for Personal Use Gregg Publishing Company, 1935

The nicety of balance between intensive efforts and relaxation will be a factor for every teacher to consider carefully.

Production

Teachers have been aware for some time that production rates and straight copy rates have shown considerable variation. Business is coming to be more interested in actual production and less interested in the copy rate and desires that the rate of working shall include not only the actual typing but also any necessary erasing (done satisfactorily), the handling of all necessary papers, carbons, and enclosures, and even the looking up of addresses or other information.

Pressure must be brought to bear on the pupil here, too, even more than in the copy situation since the production situation allows more opportunities for lost motion and wasted time.

The need exists for establishing valid production tests with norms for accomplishment. The National Clerical Ability Tests were a step in this direction. Whether the Business Entrance Tests will continue this work or whether they will follow the course of the Educational Research Bureau Tests remains to be seen.

Error Penalties

The 10-word deduction per error has been questioned but no really satisfactory solution of the matter has been agreed upon by teachers. Selby's suggestion in the matter is the

most revolutionary: He suggests a words-per-error standard

> This method of measurement of accuracy gives the advantage to the writer of a greater number of words where there are no more errors. * * Perhaps if we can establish a definite accuracy score, such as the one proposed here, we may bring about many reforms. * * Employers might demand that typists have a certain accuracy rating rather than a speed record. Contests might be held to determine the National Accuracy Champion.[1]

Rythm

There seems to be no factor in typewriting about which there is more disagreement than about rhythm. It may be that some of these disagreements are more apparent than real since not everyone thinks of the same thing when he hears the word rhythm, but no one seems to have formulated a definition of the term which has been accepted by everybody. Therefore it looks as though we shall continue to have such disagreements until we have had enough further discussion and experiments to resolve these differences of opinion into some sort of unity.

> Rhythm in typewriting has long been accepted as the "be all and end all" of method, and many exaggerated claims have been made regarding it.[1]

Clem was for it;[2] Smith[3] has written against it.

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[1]Selby, P. O. The Measurement of Accuracy in Typewriting Journal of Business Education, April, 1946 p. 23

[2]Blackstone and Smith op. cit. p. 182

[3]Smith, Harold H. The Teaching of Typewriting American Shorthand Teacher, November, 1929 p. 82

Dvorak gives many instances of motion studies from the work of the Gilbreths which prove that the motions of the expert are never slow motions, yet he does not disown rhythm.

> Correct motions are also fast motions closely timed with rhythm maintained.[1]

> ....new ways of carrying motions along in smooth rhythm have added increase to increase of saving in time. * * * Fast typing today is far faster than it was only yesterday. Still higher speeds are on the way.[2]

Dvorak includes the use of the service mechanisms in the total rhythmic pattern: "With practice, not only the carriage return but all other 'touch' manipulation is caught up in your rhythmic pattern."[3] Yet in his comments, he is thinking of something bigger than the metronomic rhythm which many persons have in mind when they use the word.

> If the variations in time for different letter combinations do not break the series of tensions, the sequences are felt to be alike. This is why rhythm is still felt, though actually the times for various words differ widely.[4]

> All such words as <u>continuity</u>, <u>facility</u>, and <u>fluency</u> * * * describe this better typing. <u>Fluency</u>, for instance, is rhythm smoothly maintained.[5]

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[1]Dvorak et al. Typewriting Behavior American Book Company 1936 p. 303

[2]Ibid p. 305

[3]Ibid p. 309

[4]<u>loc. cit</u>.

[5]Ibid p. 310

The studies of Entwistle, Wiese, and Coover tended to show that rhythm is not maintained by typists. Lahy's Paris study caused him to conclude that "exact rhythm would be fatal to speed."[1] Yet Dvorak says:

> Lack of rhythm is inefficient typing. If you hesitate over correct stroking outside of any slow rhythmic pattern, a series of hesitations runs wild throughout your practice. * * The jerky, irregular succession of your unpaced strokes is the opposite of rhythm. Leffingwell finds such series of hesitations still running through all the operations of inefficient office workers.[2]

Dvorak's advice to teachers and pupils in typewriting is:

> Avoid excessive use of rhythm drills as such. The only efficient drills are short and lively and widely separated. * * Probably more practice on relaxation and fewer formal rhythm drills will suffice.[3]

> If disturbing interference is kept away during this initial compromise stage, you are pointed for future freedom by occasionally holding an even, class-group rate that permits just enough delay between the strokes.[4]

The difficulty in talking or writing about <u>rhythm</u> is that the term seems to be confused, not only by the fact that many people think of <u>metronomic rhythm</u> as the only connotation of the word, but also by the fact that there is a considerable amount of interweaving of rhythms, "waves of fluency," "waves of speed," a sort of a "wheels within wheels" effect that makes the confusion understandable.

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[1]Blackstone and Smith <u>op. cit</u>. p. 185

[2]Dvorak <u>op. cit</u>. p. 310

[3]Ibid p. 312

[4]<u>loc. cit</u>.

This does not excuse a failure to attempt to clarify our thinking on this issue, however.

> Slower rhythms for slower sequences sink below and faster rhythms for faster sequences rise above the underlying rhythm. The term fluency is then applied to every successful interweaving of these many rhythms as the onward flow of your typing passes without a break from one rate to another.[1]

Which Keyboard?

For some time there has been agitation to change the typewriter keyboard. In fact, the idea is almost as old as the typewriter itself.[2] Whether we shall actually come to it or not, is hard to say. Dvorak, the originator of the new keyboard now proposed, and his publishers are, of course, very enthusiastic about the benefits to be derived from its use. The New Yorker makes wise cracks about it. (see Appendix C) Businessmen are indifferent unless it can be shown that the gains from its use will be large enough to be worthwhile from their point of view. Writers in periodical literature are giving the matter thought but waiting to be shown. Teachers and administrators are waiting to see what business is going to do. It has been suggested that persons who have been taught to use the standard keyboard be retrained on the Scientific keyboard. Tidwell says:

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[1]Smith, Harold H. How Best to Learn (and Teach) Typing American Shorthand Teacher, February, 1930 p. 225

[2]Herkimer County Historical Society op. cit. p. 68

> Superior typists require approximately 100 hours for retraining to secure a 35% to 50% improvement in daily output. Slow and mediocre typists frequently double and even triple their typing performance after 100 hours of retraining.[1]

But businessmen take these claims with a grain of salt and say they are waiting to see whether they can be substantiated or not before they make any changes. So school people have decided to do nothing also.

Smith[2] suggests that using the right hand to make all the spaces between words tends to balance the work of the hands and that the experimenters have completely ignored the spacing motions in their studies, which, he claims, tends to invalidate their findings.

The chief argument against the present keyboard seems to be that it makes the left hand do the bulk of the typing (see p. 153), and that most people, being righthanded, do better on the Scientific keyboard which rearranges the letters so that the most-frequently-used letters are struck by the fingers best equipped by Nature to do the work. It may be that in the World of the Future, when <u>all</u> individual differences are taken care of, that we shall have lefthanded and righthanded typewriters if Nature continues to provide us with both kinds of people.

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[1]Tidwell <u>op. cit</u>. p. 260

[2]Smith, Harold H. <u>Comments on the Dvorak Keyboard</u> Business Education World, December, 1943 p. 205

Some teachers have expressed the opinion, after looking at keyboard charts for the Scientific keyboard, that even this may not be the best possible keyboard and that perhaps it would be better to have some further research on finger-assignment of letters before making any drastic changes. These teachers do not think Dvorak has put the most-used letters on the strongest fingers.

Needed Research

Many phases of typewriting on which further research would be welcomed can be named by almost any typewriting teacher. Only a few will be mentioned here. Odell and Stuart[1] in their text for teachers suggest "areas" of research, of which they give three:

Difficulty of Typewritten Copy (broken down into 10 factors which affect difficulty)

Whether it is better to practice a troublesome letter sequence in isolation or in context

Prognostication of Success in Typewriting (which they say may be impossible)

Suggested topics for research which might be added to the foregoing are:

Causes of Errors and Effective Remedial Practice

The Practicability of Typing as a Means of Learning to Spell by the Development of Kinesthetic Memory

[1]Odell, Wm. R. and Stuart, Esta Ross Principles and Techniques for Directing the Learning of Typewriting D. C. Heath 1933 Preface

Perhaps we should not neglect a topic which might be called "Research to Check on Other Research". Tidwell makes the comment:

> ....we accept without question any piece of research just as long as it is printed or bound in the form of a thesis. Not so with other sciences. Take physics, for example--a physicist makes a report as a result of his research, and before dawn of the next day other scientists are busy in their laboratories checking his conclusions. We, on the other hand, advise our graduate students to stay away from anything that has been done, and in so doing lessen the validity of our research. We must realize that it does not decrease the value of research to repeat a study or one that is very similar.[1]

The thought has occurred to some teachers in recent years in this connection that it would have been a good idea if other research had checked on Book's research soon after the original study instead of allowing decades to intervene before any questions arose regarding the validity of his conclusions.

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Special Mention

Smith, Harold H. Many articles in American Shorthand Teacher and Business Education World, particularly (for the purposes of this thesis) The Teaching of Typewriting, American Shorthand Teacher, March, 1929 (which in this issue is a history of early methods) and The Story of Teaching Methods in Typewriting, Business Education World, January, February, March, 1947

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American Shorthand Teacher -- issues beginning with 1927 until the end of its existence

Balance Sheet, The South-Western Publishing Company, issued monthly to teachers during the school year. Nearly all issues beginning with 1930

Business Education World, The -- various issues from the first one to the present

Eastern Commercial Teachers' Association Yearbooks from 1929 to the present

Gregg News Letter Gregg Publishing Company advertising issued to teachers monthly; discusses pertinent teaching problems also -- Most of the issues since the beginning (about 1930)

Gregg Writer, The -- issues beginning with 1926 to present

Journal of Business Education, The -- most of the issues beginning with 1930

Typewriting News -- a newspaper-style periodical sent to teachers by the South-Western Publishing Company -- various Spring issues since 1932

United Business Education Association Forum -- issues of the present year

Advertising

Bryant & Stratton - booklet -- Seventy-Five Years of Achievement 1940

Remington Rand Inc. -- various booklets, leaflets, etc. issued from 1930 to present

Rowe Budget sent out to teachers by the H. M. Rowe Company, Baltimore, Maryland -- various issues

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Textbooks

Most of the better known typewriting textbooks beginning with the New Rational and Harned's Typewriting Studies (1923) and such Teacher's Manuals as could be found which accompanied them, were also examined in the preparation of this thesis. These include those of the better known publishers from that time up to the present.

It was not possible to obtain a copy of the old Fritz-Eldridge, so popular about 1917-1922, although there are those who remember it very well; nor was it possible to examine any of the older texts mentioned herein.

Appendix A

REMINGTON RAND BUSINESS SERVICE INC.

Buffalo, N. Y.

March 17, 1930

NOTICE

TEST FOR REMINGTON PORTABLE AWARD

TO OUR TEACHER FRIENDS:

May we call your attention to the dates of our next test for the Remington Portable Award--April 15 to May 15.

It will be conducted in any Remington Rand District or Sub-office or if there be neither in the town in which your school is located then the test may be given by a Remington Rand Representative in the school and properly certified by the school principal, typewriting teacher and Remington Rand Representative.

It will not be necessary for you to write to our Home Office for Test Material as it is furnished by our Representative conducting the test. However, we do suggest that you communicate with your nearest Remington Rand Office a week or ten days prior to the time you wish to hold this test so that necessary arrangements may be made.

We hope that most of your students will participate in this contest and that you will have a number of winners.

Yours very truly,

(Signed) Harry C. Spillman

Education Director
REMINGTON TYPEWRITER DIVISION

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Note: The above is a copy of a letter from the "collection" of one who was teaching in the public schools at that date.

Appendix B

Early Textbooks

Outstanding titles only are included:

1884 Haven, Curtis "Haven's Complete Manual of Typewriting" (Philadelphia) A 3-finger method; no mention of "touch".

1884 Underhill, Edward Fitch "Handbook of Instruction for the 'Typewriter,'" containing inductive exercises, arranged with a typical "guide to the correct use of the fingers".

1888 Beale, Charles Currier "Typewriting in a Nutshell" (Boston)

1889 Torrey, Bates "Practical Typewriting: by the all-finger method, which leads to operation by touch...." (N. Y.)

1890 Barnes, Lovisa Bullard "How to Become Expert in Typewriting..." (St. Louis)

1891 Longley, Elias "Longley's Typewriter Instructor, in accordance with a scientific keyboard, in which the most rapid and least tiresome mode of writing each word correctly is clearly indicated..." (N. Y.)

1891 Longley, Elias "The National Typewriter Instructor, by the 8-finger Method." (N. Y.)

1891 McClain, John F. "Typewriter Speed and How to Acquire It." (N. Y.) Contributions by leading experts of the day.

1891 McKillop, Dugald "Shorthand and Typewriting..." (N.Y.)

1893 Ellis, Harry H. "How to Double Your Speed. Compendium of Valuable Suggestions for Typewriters." (Grand Rapids)

1893 Longley, Mrs. M. V. "Caligraph Lessons for the Use of Teachers and Learners. Designed to develop accurate and rapid operators." (Cincinnati)

1893 McGurrin, Charles H. "McGurrin's Method of Touch Typewriting....Treatise on the all-finger method of operation." (Kalamazoo) Reprinted as late as 1900 under the same title in Grand Rapids.

From the American Shorthand Teacher, March, 1929, p. 241

Appendix C

The New Yorker Also Comments

(on the Scientific Keyboard)

The Navy Department has a scheme for rearranging the keys on the nation's typewriters, on the theory that now the clever right hand hasn't enough to do and the clumsy left hand has too much. With its new system, by which those familiar twins, Qwert and Yuiop, become ?,.py and Fgcrl, the Navy claims a writer's maximum speed can be increased from a hundred and forty-nine words a minute to a hundred and eighty. As earnestly as we can we warn the seamen against any such project. There were, if you remember, the inquiring scientists and the martyr rats and the little doors with food behind them. The rats got used to pushing open the doors to get at the food but Science double-crossed them. The doors were made to stick and after jumping against them desperately for a few days, the rats went mad and died with ruffled fur and staring eyes. There were the rats and now there are perhaps ten million men and women whose living depends on the knowledge that a fixed and orderly manipulation of the keys will always produce the same fixed and orderly result. The pattern of the keys is engraved on their minds, can be relied on, is safe, rigid, immovable. Change the formula, the beautiful trick acquired so painfully by so many minds and, by the God of Gregg and Pitman, you doom ten million people as surely as the rats. We start to write that useful sentence containing not only all the letters in the alphabet but also a profound moral lesson. "The quick brown fox jumps over the lazy dog." Our trained remembering fingers follow an old design but the machine is one of the Navy's new ones; the keys are out of joint and the words come out scrambled and daft: "Yd. ?gcjt xpr,b urq hgmlo rk.p yd. na'f eri." You are inviting Babel, gentlemen. Babel, spelled Xax.n!

(from the New Yorker of October 16, 1943, quoted by Harold H. Smith, in the Business Education World, December, 1943 p. 206)